

**NOW I UNDERSTAND! SUCCESS FACTORS AMONG HIGH-
ACHIEVING UNDERGRADUATE HISPANIC STUDENTS
MAJORING IN ENGINEERING AT A RESEARCH UNIVERSITY**

A Dissertation

by

BARI L. BROOKINS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2012

Major Subject: Educational Administration

Now I Understand! Success Factors among High-Achieving Undergraduate
Hispanic Students Majoring in Engineering at a Research University

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ABSTRACT

Now I Understand! Success Factors among High-Achieving Undergraduate
Hispanic Students Majoring in Engineering at a Research University.

(August 2012)

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This dissertation examined the perceptions of high-achieving undergraduate Hispanic students majoring in engineering with regard to their academic success. As the largest and fastest growing minority group in the US, Hispanics are underrepresented among the racial and ethnic compositions of students enrolled in undergraduate engineering programs. Factoring in the overall decline in the number of graduates in engineering, as well, enhances the challenges this will bring to need for a racially and ethnically representative US workforce. While engineering is an academically demanding discipline, some students not only succeed, but excel. To understand the factors that contributed to their academic success, seven high-achieving undergraduate engineering students were interviewed to examine their undergraduate experiences at Texas A&M University.

This qualitative study utilized semi-structured participant interviews as the means of data collection to gather information. Through the process of content analysis, four key themes emerged: (1) Versatility: That's a different way of seeing things that I never thought of before, (2) Individuality: I've gotten more a sense of who I am, (3) Essence: That's just how we are, and (4) Successful Study Strategies: I realized if I wanted to continue not having to relearn and relearn, I should just learn.

Findings from this study suggest that Texas A&M should emphasize engagement opportunities through the use of freshman Learning and/or Living-Learning Communities to improve the acclimation of new students into the University as well as assist them in forming the type of peer relationships that can increase the likelihood of academic success. In addition, the University should make a variety of academic assistance measures available to these students early in their academic careers to activate successful study strategies and accomplishments.

DEDICATION

To John and Shawn with love

To Mom and Dad with great honor

ACKNOWLEDGMENTS

Family has been my mainstay and my bedrock during my life. They provide the focus I need to persevere to meet my goals. Without them, I would be flitting from thing to thing never realizing that their support lets me flit with purpose, becoming a better me. Thanks, John, for your love and support during these past seven years. I couldn't have made it without you. Maybe now we can take a breath. And, I think we're about even.....

I would like to thank my committee. To Dr. Fred Bonner, my chair, thank you for listening and for giving me support and guidance. To Drs. Peck-Parrott, Lechuga, Stanley and Welch, thanks so much for the opportunity to learn from you and grow during this experience. Your advice and encouragement have helped me find my way through this endeavor.

Friends, especially good friends who can commiserate with you, always make a difficult time easier. Thanks to the "First-Friday Girls" who made me laugh and help keep everything in perspective during our breakfasts/lunches over the years: Elizabeth, Cindee, Becky, and Debby. Also, special thanks to Dr. Peggy Holzweiss who helped challenge me to stay on track and get this thing over and done with and to Dr. Kathleen Speed who helped me focus and keep the end in mind, not getting mired down in the day-to-day quagmire of living.

Finally, I must acknowledge my faith. Without it, I don't think I would have made it through. It has sustained me not only through this venture, but also

through the difficult and challenging personal times that came during these seven years. Thank you, God!

And now, on to the future...whatever it may bring.

NOMENCLATURE

A&M	Texas A&M University
AP	Advanced Placement
ELLCC	Engineering Living Learning Community
GPA	Grade Point Average
GPR	Grade Point Ratio
IRB	Institutional Review Board
MAES	Society of Mexican American Engineers and Scientists
PWI	Predominantly White Institution
SES	Socio-Economic Status
SHPE	Society of Hispanic Professional Engineers
STEM	Science, Technology, Engineering & Mathematics
SWE	Society of Women Engineers
TAMU	Texas A&M University
USRG	Undergraduate Summer Research Grants
UT	University of Texas

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CHAPTER I

INTRODUCTION

Background of the Study

Minority students, particularly African American and Hispanic, are less likely than their White counterparts to pursue post-secondary education. Should these students apply and be accepted at an institution of higher education, they are less likely to enroll. If they do enroll, they are less likely to graduate (Jaschik, 2008b).

This trend has several potential effects. The most discernible effect is economic. The jobs that are accessible to individuals who do not have a higher education are less likely to provide benefits such as health insurance, and opportunities for job/career advancement (Clark, 2008; Perna, 2003). Additionally, these students will potentially occupy a lower socioeconomic status (SES) and therefore have a lower lifetime earning potential (U.S. Census Bureau [Census], 2009). This cycle prevents the expansion of a minority middle-class which could then provide other members of these subpopulations appropriate role models from a similar racial and/or ethnic group (Dennis, Phinney, & Chuateco, 2005).

The positive economic effect of higher education on the earning potential

This dissertation follows the style of *Review of Higher Education*.

of individuals, while the most observable, is not the only benefit a college degree provides (Clark, 2008; Pascarella & Terenzini, 1991; Perna, 2003). College graduates are more likely to report higher job satisfaction, be in better health and live longer than their non-college graduate peers. They are also more likely to be actively involved in their communities, make more informed purchases and have children who are better academically prepared for all levels of education (Perna, 2003).

National productivity and educational standing of the United States (US) is measured (in some sectors) by the number of graduates from the STEM fields (Science, Technology, Engineering, and Mathematics) (National Center for Educational Statistics [NCES], 2009). The benefits that the American public have experienced due to discoveries by its scientists and engineers, such as improved health care, higher standard of living, time-saving devices, and improved agricultural and manufacturing practices, to name a few, have been numerous, yet American preeminence in these fields is on the decline (National Academy of Sciences [NAS], 2007). Fewer high school students are seriously considering the STEM fields, particularly engineering, as viable college majors. For those that are willing to consider these fields for future employment, there is concern that they are not academically prepared for the rigors such degree plans require (NAS, 2007). The ranking of the US as a producer of graduates in these fields is considered by some to be declining, an issue that has potentially serious repercussions for its future workforce and economic standing (NAS,

2007; National Science Board, 2006). Particularly in the engineering disciplines, the number of graduates at both the graduate and undergraduate levels, regardless of race and/or ethnicity, is dropping.

The proportion of minority freshmen, in terms of race and ethnicity, enrolled in engineering programs has steadily declined since 1995. The proportion of women earning bachelor's degrees in engineering has also declined from 21% in 1999 to 18% in 2008. While overall undergraduate graduation rates in engineering have remained constant since 1999, the undergraduate degree completion rate for African American and Hispanic students is 20% less than that of White students (Gibson, 2008). The racial and ethnic breakdown of undergraduate engineering students is as follows: 61% White, 11% Asian American, 5% African American, and 8% Hispanic. Clearly an imbalance exists among the racial and ethnic composition of students enrolled in undergraduate engineering programs.

Hispanics are not only the largest minority group in the United States; they are also the fastest growing minority group (Census, 2008a). It is estimated that they will be 30% of the US population by the year 2050 (Census, 2008b). The term "Hispanic" covers a widely diverse group of people in terms of ethnicity, socioeconomic status, language and national origin (Longerbeam, Sedlacek, & Alatorre, 2004). The Hispanic influence on the history and culture of the US can be traced back to the 16th century and today covers people groups from a variety of geographic locations such as Spain, Mexico, Puerto Rico,

Dominican Republic, Cuba, and South and Central America, to name a few (Kanellos & Esteva-Fabregat, 1993). While Hispanics originally resided primarily in Florida and the Southwest, they now live in all areas of the US and play a vital role in the culture of the US.

For minority students, the number of students successfully completing courses of study in the STEM fields is even more dismal than that of the overall population (NCES, 2009). However, these statistics fall far short of describing the experiences of all Hispanic students – many of these students are experiencing academic success. This study explored the perceptions of high-achieving Hispanic students in the engineering disciplines regarding factors that they perceived contributed to their academic success.

Problem Statement

The research question for this proposed project stated: What are the perceptions of high-achieving undergraduate Hispanic students from the United States (US) who are majoring in engineering regarding the factors that contribute to their academic success?

Purpose of the Study

The purpose of the proposed study was to explore the perceptions of high-achieving Hispanic students majoring in engineering, attempting to identify the factors to which they attributed their academic success.

Research Questions

The research questions that guided this study were:

1. How do high-achieving Hispanic students majoring in engineering view their academic success?
2. What strategies do these students (high-achieving Hispanic students) employ to be successful?
3. What environmental factors do high-achieving Hispanic students majoring in engineering view as contributing to their success?

Conceptual Framework

The overarching conceptual framework in which this project was situated was student academic success. While there is no single, over-arching theory, per se, that addresses academic success, many of the factors that contribute to a student's academic success in college have been identified (i.e., educational background, family support, institutional characteristics such as type, size and selectivity, and campus engagement and involvement (Pascarella & Terenzini, 1991)).

Academic success at the collegiate level has customarily been characterized in terms of student grades. While grades are not the sole defining feature of academic success, they are the fundamental constituent by which student academic success is measured (Pascarella & Terenzini, 2005). High school grades are one of the pre-college educational factors used to predict how well a student will perform academically in college along with scores on college entrance exams and class rank in high school (Astin, 1993; Pascarella & Terenzini, 2005). College grades are utilized as predictors of the likelihood (or

not) of a student to be retained and persist to graduation from an institution of higher learning. Grades are also used as predictors of the likelihood of a student to be admitted to and attend graduate school (Pascarella & Terenzini, 2005). They may also influence future employment opportunities available to students.

However, grades are not the only unit of measurement in determining academic success. Student involvement and engagement play a highly influential role in determining whether or not a student is academically successful (Astin, 1993; Tinto, 2006). Students who are an active part of their college community, whether on an academic or extracurricular basis (or both), are more likely to achieve academically acceptable status and successfully continue their higher education.

The purpose of this study was to explore the perceptions of high-achieving Hispanic students majoring in engineering and try and determine what they view as the contributing factors to their academic success. It was anticipated that these factors would include various aspects from their pre-college experiences, as well as both academic and extracurricular features including involvement and/or engagement facets of their college experiences. As previously pointed out, Hispanic students are not as successful educationally overall as their White counterparts. Hispanic students who are academically successful will make strides towards evening out the playing field for all peoples, regardless of race or ethnicity. Through educational success, these students will

be able to attain a higher socioeconomic status, which in turn will lead to greater power and privilege for themselves and their families. This new dynamic will contribute to their attainment of minority middle-class status and provide opportunities for them to act as mentors and assist others in achieving the same.

Significance

The results of this study were not intended to be generalized to every high-achieving Hispanic engineering major at every institution of higher learning in the United States, for that is not the purpose of qualitative research (Lincoln & Guba, 1985). This study sought to be significant in that it attempted to uncover the perceptions of high-achieving undergraduate Hispanic engineering students regarding the factors that contributed to their academic success. The purpose of this qualitative study was transferability; thus, it is up to the reader to make informed decisions on the findings as to whether this study, or aspects of this study, transfers to their particular contexts.

Researcher's Positionality

A major tenet of qualitative research is the role of the researcher as the instrument of data collection and analysis (Lincoln & Guba, 1985; Merriam, 2009). In order to prevent my personal views and/or biases from impacting my research, it was important that I acknowledge them so that I could minimize, and hopefully prevent, their influence on my data collection and interpretation.

I am a middle-aged White woman who has no particular academic interest in the engineering fields. Engineering, as a field, deals with subjects

that I have never felt are my strengths. My exposure to science and math courses has been limited – particularly the type of math and science courses that are an integral part of engineering degree plans. I will freely admit that I am in awe of (and a little bit intimidated by) anyone who is able to maneuver through the intricacies of these fields. As I conducted this research, I did not let my experiences with and feelings about these subjects influence both how I asked participants about their academic experiences and how I interpreted what they chose to share about those experiences.

Although I have lived in cities where there is a strong Hispanic influence, I do not consider myself to be “fluent” in Hispanic culture although I do have a basic understanding of its customs and mores. I am neither comfortable nor uncomfortable in my dealings with members of the Hispanic populace. My command of the Spanish language is almost non-existent: I can tell you my name and ask for yours; I can ask how you are and answer the same question; say please and thank you; name a (very) few objects; and ask for another beer. While exploring my participants’ experiences, I was especially conscious about not interpreting their experiences from my White perspective, especially in instances where the two cultures do not have corresponding meanings and importance. Rather, I strove to accurately represent their experiences from their perceptions of their (own) Hispanic culture.

As an instructor at Texas A&M, I have had and continue to have many Hispanic students in my classes. Like all other undergraduate students in my

classes, their backgrounds run the gamut of possibilities: socioeconomic status, academic background, academic interests and majors, family background, religious beliefs, geographic location, etc. During this study I sought to be aware of if/when my experiences as an instructor of undergraduate students affected my sensitivity to my participants and the experiences they shared with me. I was careful to accept them as they portrayed themselves to me without viewing their behavior as I might if they were enrolled as one of my students.

It was also important that I not project onto my participants my perceptions (and memories) of what it was like to be an undergraduate college student. I was also extremely cautious that I did not try to impose my explanation of events on their experiences. Although I was an undergraduate student (a long time ago), I was never a student that self-identified as Hispanic at a research university. While we might have had some experiences in common, as do all those who have been and will be undergraduate students, we have had many that are different and I was careful to respect and honor those differences during the research process.

My interest in the experiences of Hispanic undergraduate students is an outgrowth of my interest in the experiences of first-year college students, particularly those who are the first in their families to attend an institution of higher education. From my observations as an instructor of undergraduate students, I find this to be one of the most developmentally growth-intensive phases of an individual's life.

The courses I teach at Texas A&M University enroll a great number of these students (first-year and/or first-generation). Most of these students succeed in their pursuit of a higher education. Of those who succeed, some excel. Two of the many questions about these students that intrigued me were: Why do those who excel, excel? What is it that sets them apart from their peers in terms of academic success?

For the past few years, I have had the experience of having a cohort of engineering Regent's Scholars (first generation, low SES) in my classes. My experiences with them helped narrow the scope of my interest resulting in this research project.

Definition of Terms

1. High-achieving students: Students who have a 3.0 to 4.0 GPR on a 4.0 scale and have attained junior or senior status as an undergraduate student (Bonner, 2001; Harper, 2004).
2. Hispanic: The US government defines Hispanic as "those who trace their roots to Spain, Mexico, and the Spanish-speaking nations of Central America, South America and the Caribbean" (Census, 2008b). Race and ethnicity are treated as separate and distinct concepts and, with individuals determining which race and ethnicity they consider themselves, those who self-report as "Hispanic" may be of any race (Census, 2008a). The term "Hispanic" itself covers a widely diverse group of people in terms of

ethnicity, SES, language and national origin (Longerbeam, Sedlacek, & Alatorre, 2004) and is, in part, an indication of the group affiliation a person holds in terms of community (Garcia, 2003).

3. Privilege: The notion that unearned advantages are conferred upon a person simply because of their race, usually White (Leonardo, 2009). The recipient is usually completely unaware that the advantages have been bestowed upon them solely because of their race.
4. PWI (Predominantly White Institution): An institution of higher learning at which not only is the race/ethnicity of the majority of enrolled students predominantly White, but in which the campus climate in terms of academic and student services cultures also reflect the dominance of the majority (White) culture (Benton, 2005).
5. Research Universities: Universities that have been classified by the Carnegie Foundation for the Advancement of Teaching [Carnegie] according to their mission, federal funding awards, admission selectivity, number and type of degrees (Boyer, 1987) as being full-time, four-year selective institutions with comprehensive doctoral degree programs and very high research activity (Carnegie, 2009).

6. First-Generation College Students: Students whose parents (or legal guardians) did not graduate from a college and/or university (Thayer, 2000).

CHAPTER II

REVIEW OF RELATED LITERATURE AND ISSUES

Introduction

Hispanic students, like those who are members of other minority populations, experience unique student issues when attending an institution of higher education. Most Hispanic students come from lower SES levels and are more likely to live in poverty (Brown, Santiago, & Lopez, 2003; Schmidt, 2003; Torres, 2003a). They are more likely to need financial aid to be able to afford college (Fisher, 2007). Many Hispanics are debt- or loan-adverse and are reluctant to incur debt to finance their future; thus the type of financial aid they receive is very important (Brown, Santiago, & Lopez, 2003; Schmidt, 2003). Hispanic students are more likely to decide to attend an institution of higher learning if the types of financial aid offered are scholarships, grants and work-study opportunities rather than loans. For many of these students, the type of financial aid offered becomes the deciding factor in their choice of where to matriculate.

This chapter has been organized as follows. First, I present the salient issues facing Hispanic college students today. This includes a brief description of the issue with supporting literature. A concise listing of some of the more influential literature and studies conducted over the past 25 years will then be presented.

The issues faced by these students may be broadly divided into three categories: Personal, Academic and Institutional. These three broad categories may be further distilled into major areas that have great influence in the lives of these students. The compartmentalizing of these issues into one category (or area) or another is not a neat and tidy matter. While none of the three categories nor their additional components are mutually exclusive, and often contain overlap in the day-to-day lives of students, issues have been placed in the category/area where the overall fit is most logical for purposes of this study. Adjustment Issues, for example, have both Student and Academic Applications, but have been placed under Academic Issues here due to the nature of this research project.

Personal Issues

Family. There are a variety of “family” issues that impact the educational experiences of Hispanic students. Some of the more prominent ones are detailed here.

Family background. Many Hispanic students are the first in their family to enroll in institutions of higher education to pursue a college education. Because of this, their parents may not be able to help them navigate the application, acceptance and college going processes (Ayala & Striplen, 2002; Brown, Santiago, & Lopez, 2003; Ceballo, 2004; Dennis, Phinney, & Chuateco, 2005; Kao & Thompson, 2003). For some parents the issue may be even more fundamental: they may not have access to even the most basic information

about college planning and entrance practices (Auerbach, 2004). In addition, parents of first-generation college students may not understand how college “works” in terms of credit hours and class schedules (Harrell & Forney, 2003).

Hispanic students from low SES backgrounds may lack important knowledge about admissions policies considered favorable to them, such as the top 10 percent law in Texas, which guarantees admission to any public institution in the state for applicants who are ranked within the top 10% of their high school graduating class (Niu, Sullivan, & Tienda, 2008). First generation Hispanic students from low SES backgrounds are more likely to drop out of college after their first or second year (Ishitani, 2006).

This deficit does not mean that obtaining a higher education is not important to these families, it is. In fact, many low SES Hispanic parents view obtaining a college education as the path to a better, more affluent life for their children (Ceballo, 2004; Dennis, Phinney, & Chuateco, 2005; Hernandez & Lopez, 2007; Phelan, Yu, & Davidson, 1994; Perna, 2000). Even with this parental support, Hispanic students may still struggle in navigating the challenges of adjusting to both the college environment and college-level studies (Cabrera & Padilla, 2004).

White middle class values and traditions are viewed by many Hispanic families as the model to which they aspire in terms of a desired economic level and view obtaining a college education as the path to this better, more affluent life for their children (Ceballo, 2004; Dennis, Phinney, & Chuateco, 2005;

Hernandez & Lopez, 2007; Phelan, Yu, & Davidson, 1994; So, 1987). Their hopes for their children and this desire to improve their own economic status often lead to parents putting great pressure on their children to succeed academically (Ceballo, 2004; Phelan, Yu, & Davidson, 1994; So, 1987). This parental support (or pressure) may manifest itself in various ways, depending on the family and their circumstances (Auerbach, 2004; Ceballo, 2004; Phelan, et al., 1994). Students may be excused from chores to study. Families that traditionally migrated, following crop harvests, may decide to stay in one place. Children that previously helped to provide monetary support for the family may be released from working. Students may also be given privacy, a rare commodity in over-crowded living conditions, in order to study and work on school projects. Active, supportive parents who are involved in their children's education increase the likelihood of their children enrolling in and finishing college (Perna & Titus, 2005).

Importance of family. Hispanic families tend to be larger than those of non-Hispanic White families (Census, 2003). The concept of "family" plays an important role in Hispanic culture (Hernandez & Lopez, 2007; Torres, 2004a). Hispanic students convey their attachment to their families and the close family ties and family loyalty that are so important to them (Kao & Thompson, 2003). Should health, financial or other difficulties occur to family members, Hispanic students may feel the need to drop out of school to help (Gorski, 2010).

The notion of “family” for Hispanics is not necessarily limited to immediate biological family members. In the experiences of an Hispanic student, it is often expanded to include non-immediate biological family members (aunts, uncles, cousins) as well as adults outside the family who have made important contributions to the student’s development as a person (Gandara, 2005).

Role of family. Family can be both the biggest support resource for Hispanic students as well as one of their largest sources of anxiety (Gonzalez, 2002). Even though the parents may not have attended college themselves, they support their children emotionally and encourage them to do well. Some Hispanic students report studying more than their White counterparts during their high school years so that they can achieve their educational goals (Redden, 2008). High levels of parental support, such as those detailed above, can impose additional stress on a Hispanic student. Because their parents view educational attainment as one of the main pathways to improving their standing (SES and otherwise), enormous pressure may be placed on the student to succeed academically (Ceballo, 2004; Phelan, Yu, & Davidson, 1994; So, 1987).

Students who are the first among their siblings to attend an institution of higher education , particularly those who are first-born, may feel even more stress to succeed due to their awareness of needing to be a role model for their younger brothers and/or sisters (Saunders & Serna, 2004). This belief may be self-imposed or may come from a combination of sources – family members, friends, high school teachers/counselors, etc. Rather than be excited about

following in the footsteps of their older brothers and sisters, younger siblings may feel that they now have no choice and must attend college, even if it is not their personal goal (Attinasi, 1989).

Family expectations. Family expectations can also place negative demands on Hispanic college students. Because of the low SES levels of many Hispanic families, oftentimes students work and contribute to the family's financial situation during their high school years. This monetary contribution may be expected to continue, even when the student is enrolled in college (Schmidt, 2003; Torres, 2003a) placing additional stress on the student. Especially among students who are in the first generation of their family to be primarily raised in the US, there may be instances when the student has handled the "business" affairs of the family by acting as a "linguistic broker" translating not only words, but also concepts, across the two cultures (Cabrera & Padilla, 2004). The loss of the family "liaison" would weigh heavily upon these families (Zurita, 2007). These students frequently feel compelled to make trips home, often a great distance and a great expense, in order to continue to help their families.

Personal growth and development . Students experience growth and development during their college years (see Ferdman & Gallegos, 2001, Helms & Cook, 2005, and Torres, Howard-Hamilton & Cooper, 2003, for identify development models). While models are useful in helping to describe how development occurs, it is important to bear in mind that no single aspect of an

individual's development takes place in isolation. Students experience growth and development in their ethnic, cognitive and psycho-social domains simultaneously (Torres & Baxter-Magolda, 2004). This development does not occur in an ordered, step-wise progression and it may appear that these students are skipping back and forth between the two cultures, remaining in neither, as they grapple with the differences between the two (Torres & Phelps, 1997; Torres, 1999). Ultimately, as students' ethnic development progresses, they become more adept at moving between cultures such as their primary Hispanic culture of home and family and the White culture of the university (Perez & Padilla, 2000, Torres & Hernandez, 2007). They are able to overcome the culture shock that often comes from being somewhat suddenly immersed in an environment that is different from any they have known (Vasquez, 1997). These differences can be comprised of a number of variables: SES level, racial/ethnic makeup of population, geographical location, size of town, size of institution, etc.

As Hispanic students undergo this personal development, they may become aware of the manner in which these changes affect their relationships with family and friends from home (Jaschik, 2008a). Changes in ways of thinking, behaving, and even their world view can isolate them from those who have played a significant role in their pasts. Female students, especially, may feel a sense of isolation from family and friends because of their growing independence and development (Gonzalez, Jovel, & Stoner, 2004).

It is not unusual for Hispanic college students to “rediscover” their Hispanic heritage and focus on things Hispanic, especially when they are enrolled at a PWI (Ferdman & Gallegos, 2001; Perez & Padilla, 2000; Torres, 2003a; Torres, Winston, & Cooper, 2003; Zurita, 2007). They may not even be aware that they are doing so. Food, music, and literature that reflect their Hispanic heritage, along with conversing in Spanish (if they are Spanish speakers), may become more important to them than it was in the past. Often they will find friends with whom they share their common heritage and these will become their primary support relationships.

Academic Issues

Enrollment status. Many Hispanic students work while they are enrolled in college, and many will work full-time (Arbona & Nora, 2007; Hernandez & Lopez, 2007; Schmidt, 2003). The reasons for this vary. As stated previously, many are loan adverse and reluctant to mortgage their future, especially if they are not confident they will be able to succeed at this level (Brown, Santiago, & Lopez, 2003; Schmidt, 2003). They may not be aware of the financial aid opportunities (other than student loans) that are available to them and therefore be under the impression that they must pay for their entire education as they go (Brown, Santiago, & Lopez, 2003; Ceballo, 2004; Dennis, Phinney, & Chuateco, 2005; Kao & Thompson, 2003). Whatever the reason, because many Hispanic students work, they are enrolled in fewer hours, and are usually enrolled on a part-time basis, as opposed to their non-Hispanic peers (Arbona & Nora, 2007).

They are also more likely to be non-traditional students (outside the 18-25 year age range) because of these same factors (Schmidt, 2003).

Adjustment issues. Hispanic students often feel torn between the culture of their families and the culture of the university. The typical American university has an individualist orientation which is often in direct conflict with the collective philosophy of many Hispanic groups (Dennis, Phinney, & Chuateco, 2005). Students with an individualistic orientation are more likely to pursue a higher education for reasons that are based on personal interests such as the status and higher earning potential from a rewarding career that this education makes available for the individual. Students with a collective orientation are motivated to obtain a higher education because of family expectations and/or the opportunities that such an education will present for the student to provide assistance (both monetary and non-monetary) for those in their family and community. Students who are first-generation Americans often feel this tension most keenly and may feel a clash between the two cultures and the dueling expectations of family and college (Brown, Santiago, & Lopez, 2003; Torres, 2003a; Torres, 2003b).

Academic preparation for college. Another major theme in the literature is the academic under-preparedness of Hispanic students (Arbona & Nora, 2007; Brown, Santiago, & Lopez, 2003; Dennis, Phinney, & Chuateco, 2005; Fisher, 2007; Rodriguez, Guido-DiBrito, Torres, & Talbot, 2000; Schmidt, 2003; Torres, Winston, & Cooper, 2003; Zurita, 2007). Most Hispanic students

enter college with lower Grade Point Ratio's (GPR's), lower Scholastic Aptitude Test (SAT) scores and fewer college-preparatory class from high school than their non-Hispanic, higher SES counterparts. They frequently struggle to meet the academic demands of college level work.

This inadequate preparation is attributed to various sources. Some high schools only offer a non-college curriculum (Schmidt, 2003) thereby limiting the academic choices and development of their students. Various researchers feel that the problem of inadequate instruction is constant throughout the K-12 arena (Aleman, 2006; Brown, Santiago, & Lopez, 2003) while others (Gandara, 2005) interpreted evidence collected as an indication that the problem does not surface until the middle school years, after eighth grade. The lower test scores of Mexican-American Hispanic children whose parents are migrant workers have been attributed to their routine of frequently moving as they follow the harvest cycle of crops (Ream, 2005). The defacto segregation in public schools that exists because most Hispanics have a lower SES and live in poverty has also been suggested by some researchers as substantiation of the under-preparedness of Hispanic students in college (Contreras, 2004; Kao & Thompson, 2003).

Some researchers suggest that this under-preparedness is a primary factor in the lack of persistence toward attaining a college degree for Hispanic students (Anderson & Kim, 2006). In their extensive examination of the literature on minority student success, Swail, Redd & Perna (2003), state that

“...the most significant factors in whether students are prepared for and motivated to enroll in college is the rigor of their precollege curriculum and the support of peers, family, and friends....” (p. 57)

Institutional Issues

Campus involvement and engagement. Student involvement and engagement in their campus environment has also been repeatedly linked to students' successful adjustment and navigation of college (Fisher, 2007; Hernandez & Lopez, 2007; Laird, Bridges, Morelong-Quainoo, Williams, & Holmes, 2007; Murtaugh, Burns, & Schuster, 1999; Tinto, 2006). It is important for students to establish friendships and supportive peer relationships. These relationships are felt to be essential to a student's positive adjustment to university life since they become an important source of support for students during their college years (Gonzalez, 2002; Phelan, Yu, & Davidson, 1994; Torres, 2003a).

Another important facet of student engagement is involvement in student organizations (Dennis, Phinney, & Chuateco, 2005; Hurtado, Carter, & Spuler, 1996; Torres, Winston, & Cooper, 2003). These student organizations may become even more important, especially at a Predominantly White Institution (PWI), if they have an ethnic orientation, thus allowing Hispanic students the opportunity to find other students who share their values and culture (Torres, 2003a).

Stereotyping and discrimination. Hispanic students report facing stereotyping and discrimination, especially when attending PWI's. This stereotyping and discrimination takes many forms and comes from many different sources (Fisher, 2007; Gonzalez, 2002; Hernandez & Lopez, 2007; Hurtado & Carter, 1997; Ostrove & Long, 2007; Rodriguez, Guido-DiBrito, Torres, & Talbot, 2000). The discrimination may come from faculty, other students or the community in which the institution is located. It may be blatant or subtle. As a result, Hispanic students may feel that they don't belong in college (Torres & Hernandez, 2007). They may feel academically and socially isolated from their non-Hispanic peers. Hispanic students often report feeling unwelcome on campus (Rodriguez, Guido-DiBrito, Torres, & Talbot, 2000). It seems rather ironic that Hispanic students are so often the sufferers of stereotyping and discrimination, since they, as a group, are more likely to appreciate diversity on the college campus than other students (Longerbeam, Sedlacek, & Alatorre, 2004).

Sense of belonging. A concept closely related to issues of stereotyping and discrimination is that of sense of belonging. Hispanic students often report feeling as if they do not "fit in" with the campus culture at institutions of higher education (Gonzalez, 2002). This sense of belonging includes all areas of college life – academics, social, organizations, residence halls – as well as the emotions, values and beliefs of individual students (Johnson, Soldner, Leonard, Alvarez, Inkelas, Rowan-Kenyon, & Longerbeam, 2007; Nora, 2004). Students

who perceive that they are academically and socially integrated into campus life are more apt to not only continue to attend a school but to be successful students (Strauss & Volkwein, 2004).

These feelings may be due to stereotyping and/or discrimination that these students have experienced, or they may be due to the cultural differences discussed above. Minority students who perceive racial tensions on campus have a decreased sense of belonging and are less likely to remain enrolled (Locks, Hurtado, Bowman, & Oseguera, 2008). In contrast, minority students who experience positive cross-cultural interactions with peers from diverse racial and ethnic backgrounds, including White, are more likely to view themselves as fitting in with the culture of an institution and are more prone to continue their enrollment (Hurtado, Han, Saenz, Espinosa, Cabrera, & Cerna, 2007).

Faculty interaction. An area where Hispanic students often feel marginalized or stereotyped is in their interactions with faculty (Gonzalez, 2002) because of their academic under-preparation and the cultural stereotypes that Hispanics as individuals are undisciplined, fatalistic, irrational, passive, and submissive with no ambition (Rodriguez, Guido-DiBrito, Torres, & Talbot, 2000). This is an interesting dichotomy because faculty interaction and support, especially in terms of personal and/or professional mentoring, has been demonstrated to enhance a students' academic success and the likelihood of their retention (Brown, Santiago, & Lopez, 2003; Ceballo, 2004). For some students, lack of minority role models can be a contributing factor to both their

lack of academic success and their lack of successful adjustment to the overall campus environment (Padilla, Trevino, Gonzalez, & Trevino, 1997).

Faculty can also have an influence on the institutional environment in terms of how non-minority students view and accept minority students (Hurtado, Milem, Clayton-Pedersen, & Allen, 1999). Faculty who make a concerted effort to actively foster an encouraging and accepting environment for minority students, both inside and outside of the classroom, can affect in a positive manner how minority and non-minority students alike view the institution's climate where minority students are concerned.

Faculty, particularly minority faculty, can play a highly influential role as mentors to Hispanic students. Particularly if a student is interested in academia as a career, a successful mentor can assist the student not only in navigating the necessary path to such a profession, but also during the challenging years of attaining tenure (Luz Reyes & Halcon, 1997). This guidance and support can be particularly invaluable if the former student is at an institution that does not have an ample minority faculty who can offer support and guidance in understanding and navigating the institutional culture at that particular school.

Financial aid. Many Hispanic students chose to begin their higher education at two year community colleges or small public institutions, often because of cost and geographic closeness to home (Fry, 2002). Often these students are not aware of the financial assistance that is available for them to

attend four-year, larger institutions. Some are uninformed about the financial aid process and all it entails (Tierney & Venegas, 2009).

Overall, most Hispanic students come from lower SES levels and are more likely to live in poverty (Brown, Santiago, & Lopez, 2003; Schmidt, 2003; Torres, 2003a). They are more likely to need financial aid to be able to afford college (Fisher, 2007) and are less likely than their White counterparts to persist to graduation (Anderson & Kim, 2006). Many Hispanics are debt- or loan-adverse and are reluctant to incur debt to finance their future; thus the type of financial aid they receive is very important (Brown, Santiago, & Lopez, 2003; Schmidt, 2003). For many Hispanic students, finances and financial aid are a major stressor (Munoz, 1986). Not only are they keenly aware of the amount of debt they are accruing, they are anxious about the continuation of financial aid from year to year, wondering if it will no longer be available and leave them short of their goal – a degree.

Not all college-bound students respond the same way to financial aid types (St. John, 2000). Hispanic students are more likely to decide to attend an institution of higher learning if the types of financial aid offered are scholarships, grants and work-study opportunities rather than loans. To insure continued enrollment, these grants and work-study opportunities must continue past the first two years of attendance. For many of these students, the type of financial aid offered becomes the deciding factor in their choice of where to matriculate.

A concise listing of some of the more influential literature and studies conducted over the past 25 years is presented in Table 2.1. The information contains the author(s) of the study and a summary of the significant findings from the study.

Table 2.1
Influential Studies and Literature

Study	Summary
Munoz, 1986	A quantitative study that explored differences in stress levels between Anglo and Chicano college students while pursuing a college degree. Findings reveal that Chicano students, in general, experience more stress than Anglo students with Chicanas experiencing the highest levels. Stressors include finances, family, and cultural adjustments.
So, 1987	A qualitative study that examined the success factors of high-achieving, low SES Hispanic students using the LISREL model. Findings support the appropriateness of the model and indicate that having a middle-class reference group is important in motivating these students to achieve. In addition, students who had a college-oriented peer group and parents who emphasized education were more successful.
Stampen & Fenske, 1988	An article that reviews the history of financial aid with regard to underrepresented populations. Contributing factors to the lack of Black, Hispanic, and American Indian participation in higher education include rising costs of college; effect of inflation on real purchasing power; shift in aid dollars from grants to loans; and a renewed emphasis on stringent admittance requirements.
Attinasi, 1989	A qualitative study of the factors that influence persistence of Mexican-American university students. Results indicate that decisions to persist are based on two behavioral schemes: Getting Ready and Getting In. Getting Ready dealt with pre-matriculation experiences of initial expectation engendering, fraternal modeling, mentor modeling, indirect simulation and direct simulation. Getting In dealt with post-matriculation experiences of navigating the geography of college: physical geography, social geography, and academic/cognitive geography.

Table 2.1 Continued

Study	Summary
Brown, 1991	Description of a seven step model whose goal is to increase the access of minority students to higher education. Steps in the model include all levels of campus community as well as aspects of student recruitment and retention.
Astin, 1993	Classic work on student retention that focuses on the I-E-O model as conceptual guide. Primary retention factors promoted include peer group influence, faculty-student interaction and institutional type.
Astin, Tsui, & Avalos, 1996	A quantitative study that examined degree attainment rates over three time intervals (4, 6 and 9 years) broken down by institutional type, gender and race. Findings were that degree attainment rates vary by type of institution, gender and racial group.
Hurtado, Carter, & Spuler, 1996	A quantitative study that examined factors that influence Latino student adjustment to college. Findings indicate campus climate and transitional experiences greatly affect all aspects of student adjustment.
Nora & Cabrera, 1996	A quantitative study that sought to assess and determine the direct and indirect effects of discrimination on minority college students. Findings indicate that pre-college preparation and strong parental support are more influential in students' decision to remain in college than discrimination is in students' decision to leave college.
Hurtado & Carter, 1997	A quantitative study that examined the effect of sense of belonging by Latino students. Findings indicate that institutions need to place a greater emphasis on how Latino students perceive the events that accompany their adjustment to college life.

Table 2.1 Continued

Study	Summary
Padilla, Trevino, Gonzalez, & Trevino, 1997	A qualitative study that examined strategies successful minority students utilize to succeed in college. The study resulted in the refinement of the Expertise Model which identified two types of knowledge – heuristic and theoretical – both of which must be acquired by college students in order to be successful.
Torres & Phelps, 1997	A exploratory quantitative study that sought to validate a bi-cultural model of Hispanic identity development. Results indicate a promising model that provides Hispanics a score which places them within a quadrant on the dimensions of acculturation and ethnic identity.
Hurtado, Milem, Clayton-Pedersen, & Allen, 1998	A literature analysis that sought to develop a framework on campus climate. This framework identified four dimensions of campus climate: (1) an institution's historical legacy regarding inclusion/exclusion; (2) structural diversity in terms of numerical representation of racial/ethnic groups; (3) psychological climate of perceptions/attitudes between/among various groups; and, (4) behavior climate of intergroup relations on campus.
Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998.	Evaluation of the Undergraduate Research Opportunity Program at University of Michigan. UROP was a student-faculty research partnership that had seven components focusing on the recruitment and retention of minority students. Primary findings were that research collaborations can increase retention of minority students and that availability and participation early in a student's education was most valuable in retention.
Hurtado, Milem, Clayton-Pedersen, & Allen, 1999.	A literature analysis that sought to serve as a resource in improving the climate for diversity on college campuses. Contains sections on various aspects of campus climate as well as recommendations and examples of efforts at various institutions.

Table 2.1 Continued

Study	Summary
Murtaugh, Burns, & Schuster, 1999	A quantitative study that sought to identify factors to reduce attrition at Oregon State University. Results indicate that student involvement is the key issue in retention. Institutions must provide sufficient and suitable programs to increase students' feelings of connection to the university. Particularly effective programs include first-year seminars/freshman orientation courses which strengthen the likelihood of students' success during their initial enrollment.
Torres, 1999	A quantitative study that sought to verify the Bicultural Orientation Model as a tool for identifying the cultural orientation of Hispanic college students which demonstrates the relationship between acculturation and ethnic identity. In this model, individuals are placed in one of four quadrants by virtue of their score: Hispanic Orientation, Bicultural Orientation, Anglo Orientation and Marginal Orientation. Results validate the construct of biculturalism.
Hernandez, 2000	A qualitative study that resulted in a conceptual model of Latino Student Retention. The study found that desire to succeed was the most prominent issue for these students.
Perez & Padilla, 2000	A quantitative study that explored changes in acculturation across three generations of high school students. Results indicate that the further removed from the country of Hispanic origin in terms of generations in the US, the greater acculturation into the chief American culture. Individuals still retain facets of their Hispanic culture, particularly when they have strong family ties.
Perna, 2000	A quantitative study that sought to explore the differences on college enrollment decisions between White, African American and Hispanic students. Findings indicate that there are differences among these groups based upon their cultural and social capital.

Table 2.1 Continued

Study	Summary
Rodriguez, Guido-DiBrito, Torres, & Talbot, 2000	An article that explored issues that influence Latina college success. Two types of barriers to college success were identified: (1) those to getting in (low SES; effects of cultural/gender-role stereotyping), (2) those when you get there (underpreparation; financial constraints; social/family obligations, and institutional marginalization). High achieving Latinas reveal the following success factors: mother's role/support; parenting/schooling philosophy; marital status/children; gender roles; biculturalism; and role models. Suggestions for institutions to increase success are greater financial aid, academic support systems, social/cultural support systems, and overall campus environment.
St. John, 2000	A review of the issues surrounding the impact of financial aid on students' college going decisions. The study indicates that financial aid, and type of financial aid, influences decisions on matriculation, retention and persistence. Of important note are the differences between minorities to financial aid package offers.
Tinto, 2002a	A conference speech that outlines the current thinking on access and retention. Includes summary of main issues and recommendations for practice.
Chrispeels & Rivero, 2001	A qualitative study that sought to understand how Latino parents viewed their role in the education of their children. This study found that Latino parents have high educational aspirations for their children in spite of a lack of understanding of the US public school system. These parents view their role to be supportive of the teacher and school system in making sure their children attend school and are respectful, not as a partner in their children's education.

Table 2.1 Continued

Study	Summary
Rudenstine, 2001	A reflection on the progress of the diversification of higher education. Important aspects conveyed are the educational importance of diversity; need to realize that diversity is not just race/ethnicity, but may also be geographic, SES, nationality, religion, interests and world views; and that students need direct interaction with “other” students, not just an acknowledgement that different types of people exist.
Fry, 2002	A quantitative study that examined the data on Latino enrollment in higher education comparing Latinos with other racial/ethnic groups in terms of enrollment statistics.
Gonzalez, 2002	A qualitative study that investigated the elements of campus culture that affected Chicano student persistence at a PWI. Two findings emerged. (1) Three campus culture systems were identified that affected persistence (social world; physical world; and epistemological world) by conveying the message that the Chicano presence was not welcome or valued in these worlds. (2) Important sources of support for these students expressed the Chicano culture (student organizations, friends, faculty members, courses, etc.).
Gurin, Dey, Hurtado, & Gurin, 2002	A quantitative analysis of data from CIRP and the University of Michigan examining the effects of classroom diversity and informal interactions among students of various races/ethnicities (including White). Conclusions reveal the importance of diversity, not just in an educational setting, but also for democracy. Three types of diversity aspects are described: structural (numerical representation of a group); informal interaction (outside the classroom); and classroom (within a structured classroom setting). The greatest impact on students occurred in the informal interaction and classroom aspects.

Table 2.1 Continued

Study	Summary
Jones, Castellanos, & Cole, 2002	A qualitative study that examined experiences and perceptions of minority students enrolled at a PWI. Findings indicate the importance of fully integrated cross-cultural centers, strategies to help minorities in dealing with discrimination/stereotyping issues, and the need for collaboration among all groups towards a common effort.
Tinto, 2002b	A conference speech that outlined current issues on student access and retention. Includes summary of main issues and recommendations for practice, including importance of Learning Communities.
Brown, Santiago, & Lopez, 2003	An article that focuses on the issues challenging Latino students as successful undergraduate students. Factors mentioned include: first-generation, low SES, academic underpreparedness, non-traditional, financial aid, navigating the application process, cost of college, concept of family/family values, and feelings of belonging.
Harrell & Forney, 2003	An article reviewing the factors that influence the navigation of Hispanic students from high school to college. Factors reviewed include high school academic preparation, college entrance exams, and family demographics.
Lau, 2003	A paper summarizing institutional factors that affect student retention. Conclusions affirm that all levels of individuals at an institution (administrators, faculty, and students) must resolve to work together for the good of the institution and its students.
Reason, 2003	A review of student retention research on the effect of student characteristics on retention. Conclusions suggest that retention variables be updated as demographic variables of students continue to change.

Table 2.1 Continued

Study	Summary
Swail, Redd, & Perna, 2003	A monograph that summarizes the historical issues in the retention of minority college students. Topics covered include: importance of college and a college education; student retention factors and models; integration as a framework for retention; and recommendations and issues for implementation and leadership.
Torres, 2003a	A qualitative study that examined the influences on the ethnic identity development of 10 Latino/a students at a highly selective college during their first two years of matriculation. Findings indicate that two primary categories were influential: (1) Situating Identify (environment; family influence; and, generational status), and (2) Influence on Change (psychosocial/cognitive development). A student's perception of campus diversity determines how they view their ethnic identity.
Torres, Howard-Hamilton, & Cooper, 2003	A monograph that reexamines foundational college student identity development models and theories with an awareness of the changing demographics among minority groups.
Torres, Winston, & Cooper, 2003	A qualitative study that investigated the effect of geographic location on students' level of acculturation and/or ethnic identity using the Bicultural Orientation Model. Findings indicate that geographic location and critical mass (high number of Hispanics in community) led to higher ethnic identity while geographic location without critical mass led to a closer identification with the majority culture.
Auerbach, 2004	A qualitative study that sought to evaluate a bilingual outreach program targeting Latino parents to increase their participation in their children's college going process. Results show that overall the culturally sensitive program was successful.

Table 2.1 Continued

Study	Summary
Cabrera & Padilla, 2004	A qualitative case study that examined the educational experiences of two Mexican-American Stanford graduates. Findings indicate that these students were able to acquire the knowledge and skills necessary to succeed in college. Also explored were adjustment issues and how these were dealt with.
Ceballo, 2004	A qualitative study that investigated the role of family in the academic success of 10 successful Latino students at Yale. Four common characteristics emerged: parents strongly emphasized the importance of education; parents supported students' needs for autonomy; parents provided non-verbal support for educational endeavors; and, faculty role models/mentors.
Contreras, 2004	An article that briefly traces the history of Hispanic immigration and education in the 19 th and 20 th centuries.
Edwards, 2004	A reflective essay contemplating racial equality/inequality over 50 years of personal experience. Conclusions incorporate such concepts as integration ≠ assimilation; importance of valuing own distinct racial identity; importance of "safe" place to recharge cultural batteries; and importance of effective mentoring.
Gonzalez, Jovel, & Stoner, 2004	A qualitative study that investigated the unique issues faced by high-achieving Latina students. Results indicate that major issues were desire for independence versus parents' desire for them to be close to home; homesickness; loss of closeness with family; and desire to continue into graduate education.
Knight, Norton, Bentley, & Dixon, 2004	A qualitative study that examined the practices of working-class Black and Latina/o parents regarding support of their children's college-going process. Findings indicate that parents are very supportive, but that the definition of "family" needs to be expanded and that there needs to be a greater awareness of the unique issues of students from this background.

Table 2.1 Continued

Study	Summary
Longerbeam, Sedlacek, & Alatorre, 2004	A quantitative study that investigated differences between 2,991 Latino and non-Latino students. Results indicated that Latinos, as a group, are a very diverse population in terms of ethnicity, SES, language and national origin, and as such are more likely to appreciate the diversity of a college campus. Latino students are also more concerned than non-Latino students with academic and financial matters.
Nora, 2004	A quantitative study that explored which psychosocial factors influenced the decisions of college students about which institution to attend. Findings indicate that there is a complete interplay between personal and institutional factors, but that students primarily choose to attend where they feel they “fit” in terms of values of beliefs.
Saunders & Serna, 2004.	A qualitative study that focuses on examining how first-generation Latino students in an intervention program adjust to college. Findings indicate that students who have supportive networks (whether new or old) are able to mobilize the necessary support to be successful.
Strauss & Volkwein, 2004	A quantitative study that investigated factors that influence student commitment at 28 two- and 23 four-year institutions. Findings indicated that the most influential variables in students deciding to continue at an institution were campus-related such as classroom experience, faculty availability and involvement, and student involvement in campus activities.
Torres, 2004a	A qualitative study of 83 first-year Latino students from 7 institutions investigating the factors of family influence and generational status. Three issues emerged: how students choose to self-identify (Hispanic/Latino rather than Mexican/Mexican American); variation in experiencing cultural conflict; and students from mixed (White/Hispanic) backgrounds.

Table 2.1 Continued

Study	Summary
Torres, 2004b	A review of educational issues and attainment of non-Mexican-American Latino college students broken down by country of origin. Different populations have different issues and caution is given against a one-size-fits-all approach for recruitment and retention.
Torres & Baxter Magolda, 2004	A qualitative study that examined the influence of cognitive development on ethnic identity development. Results indicated that experiencing cognitive dissonance and developing more complex ways of evaluating experiences increases positive images of a student's ethnicity for them and decreases the likelihood that they will be susceptible to stereotype vulnerability.
Dennis, Phinney, & Chuateco, 2005	A quantitative study that explored the role of personal motivational characteristics and environmental social supports in the academic success of 100 minority (Asian, Latino), first-generation college students. Results indicated that high school GPR was the best predictor of college GPR and that personal motivation was a positive predictor of college success. Lack of peer resources/support negatively predicted college success.
Graunke & Woosley, 2005	A quantitative study that investigated the experience and attitudes of second semester sophomores on their academic success. The study found that commitment to major and faculty interactions were the most significant predictors of GPA.
Hassinger & Plourde, 2005	A qualitative study that examined the personal character traits and external motivational factors for high-achieving Hispanic students. The study found that the success of these students could be partially attributed to Resilience Theory.

Table 2.1 Continued

Study	Summary
Ostrove & Long, 2005	A qualitative study that explored the role of social class on student experiences at a selective liberal arts college. Findings indicate implications of social class/background on sense of belonging as well as academic and social outcomes for college students. Students from a higher social class had a greater sense of belonging and, thus, greater academic success, than those from a lower social group.
Perna & Titus, 2005	A quantitative study that investigated the relationship between parental involvement (social capital) and college enrollment across racial/ethnic groups. Results indicate that increased parental involvement results in higher college enrollment, particularly for Hispanic and African American students. Recommendations call for college preparatory programs to increase parent involvement in the college going decision making process for minority students.
Ream, 2005	A quantitative study that explored the underachievement of Mexican American students in high school, particularly with regards to other non-White Latino students. Results indicate that this underachievement can be attributed to the tendency of this sub-population to move often, to have lower test scores, and to have less peer social engagement.
Chang, Denson, Saenz & Misa, 2006	A quantitative study of CIRP data that examined the relationship between diversity and student development targeting students' social, personal, and affective domains. Results indicated greater gains across domains for students with greater diversity experiences.
Ishitani, 2006	A quantitative study that investigated the retention and attrition factors among first-generation college students in the US. The study found that pre-college variables and financial aid, particularly type of financial aid, were extremely important in where/why students decided to attend.

Table 2.1 Continued

Study	Summary
Tinto, 2006	An article that reviewed student retention research and practice and distinguished three areas for the future. These three areas are institutional action, appropriate program implementation, and addressing the needs of low income students. Tinto argues for an integrated approach making three main points: (1) knowing why students leave and why they stay are not the same thing; (2) in order to be successful there must be identifying/implementing of programs as well as their beginning/enduring; and, (3) access is not the same as persistence.
American Association of State Colleges and Universities, 2007	An initiative that aspired to account for the differences in Hispanic retention and graduation rates among 11 universities. Findings focused on campus culture and climate.
Arbona & Nora, 2007	A quantitative study of the factors that predict college attendance for Hispanic students. Strongest predictors for matriculation were pre-college characteristics and experiences. Strongest predictors for retention were college experiences. Students who went directly to a four-year institution were more likely to earn a bachelor's degree than those who began at a two-year college.
Cole, 2007	A quantitative study of CIRP data that investigated the importance of racial/ethnic group with student-faculty interactions and intellectual self-concept. Findings indicate that racially/ethnically diverse campuses increase student intellectual development partially through interactions with faculty.
Fisher, 2007	A quantitative study that explored the racial and ethnic differences in adjusting to college as well as the effects of different adjustment strategies for White, Asian, Hispanic, and Black students. Results indicate that not all minority groups adjust in the same way, although there are similarities. Involvement is key for all groups, but the effectiveness of the type of involvement (academic, social, etc.) depends on the population.

Table 2.1 Continued

Study	Summary
Hernandez & Lopez, 2007	A book chapter that describes the factors that influence the retention of Latino students in higher education. Factors expanded on include demographic characteristics, personal factors (high school grades/test scores; academic self-concept; family; and finances), environmental factors (racial climate; presence of an ethnic community; and working/living off campus), involvement factors (faculty-student interaction; mentorship; and participation in student organizations), and socio-cultural factors (immigrant status; ethnic identity development; gender roles; community orientation; and the role of religion).
Hurtado, 2007	ASHE Presidential Address summarizing the importance of diversity with regards to the mission of higher education. Focus was on the importance of diversity in terms of increasing complex thinking, cultural/social awareness, and pluralist orientations. Discourse included a plea for faculty to recognize and embrace their role in making this happen.
Hurtado, Han, Saenz, Espinosa, Cabrera, & Cerna, 2007	A quantitative study that explored key impact factors on the college transition of minority students majoring in the biomedical and behavioral sciences. Results demonstrate that adjustment and integration into college is affected by cost/financial aid, family background and campus cultural environment.
Johnson, Soldner, Leonard, Alvarez, Inkelas, Rowan-Kenyon, & Longerbeam, 2007	A quantitative study that investigated the sense of belonging among 2,967 first-year students from a variety of institutions and racial/ethnic backgrounds. Findings indicate that minority students reported a lower sense of belonging than did White students. Purported factors that contributed to this were transitioning to college, residence hall climate, and perceptions of campus racial climate.

Table 2.1 Continued

Study	Summary
Laird, Bridges, Morelon-Quainoo, Williams, & Holmes, 2007	A quantitative study using 2003 NSSE data to explore the differences between African American and Hispanic students at PWI's and HBCU's/HSI's. Results show that senior Hispanics at HSI's are very similar to those at PWI's in terms of engagement, satisfaction and development. African American seniors attending HBCU's, in contrast, are more engaged than those who attend PWI's. Conclusions reached indicate that student engagement is crucial to student success, regardless of the type of institution.
Lundberg, Schreiner, Hovaguimian, & Miller, 2007	A quantitative study that examined the interaction between race/ethnicity, first-generation status, involvement and learning. Results detailed factors for various groups that affected involvement. Recommendations included development of specific programs for specific racial/ethnic groups based on these factors.
Torres & Hernandez, 2007	A qualitative portion of a longitudinal mixed methods study that explored the influence of ethnic identity on the development of Latino/a college students. Primary tasks that influenced this development were recognizing and making meaning of instances of racism.
Zurita, 2007	A qualitative study that investigated the experiences of 10 Latino recent undergraduate students of whom 5 persisted and 5 stopped out. Both groups shared similarities of backgrounds and academic experiences. Differences emerged in how each group handled challenges and problems encountered.
Locks, Hurtado, Bowman, & Oseguera, 2008	A quantitative study that sought to evaluate a model of students' diversity experiences in predicting the transition to college for White and minority students. Results indicate that both pre-college dispositions and college interactions influence students' sense of belonging. Recommendations are that institutions invest resources in programs that encourage and facilitate meaningful interactions across racial and ethnic groups.

Table 2.1 Continued

Study	Summary
Dowd, Malcom, & Bensimon, 2009	A quantitative study that examined the representation of Latinos enrolled in STEM disciplines as a percentage of overall university enrollment at 25 Hispanic Serving Institutions. Findings were that the percentage of enrollment in STEM disciplines was proportionate to overall student enrollment.
Park & Denson, 2009	A quantitative study that examined “Diversity Advocacy” – a composite variable to assess a variety of faculty attitudes towards diversity. Findings indicate that Diversity Advocacy is related to several traits (race/ethnicity, academic discipline, and awareness of diversity issues) and that a “score” can be affected through awareness raising efforts such as workshops.
Rivas-Drake & Mooney, 2009	A quantitative study that investigated the effect of how perceived minority status affected academic achievement using 3 distinct orientations – assimilation, accommodation and resistance – at elite institutions. Findings were that while achievement did not differ significantly among the three groups, there were differences in other academic success factors such as time spent studying and campus engagement and involvement.
Torres, Jones, & Renn, 2009	A review of identity development theories that includes a brief history as well as the situation of identity theory within other scholarly disciplines (psychology, sociology, etc.). New approaches, especially within the various domains of Critical Theory, are discussed with regards to identity development and future research methodology is suggested.
Melendez & Melendez, 2010	A quantitative study that investigated the role of familial influences on the adjustment of female college students from different races – White, Black and Hispanic/Latina. Findings indicate that race/ethnicity and parental attachment influence adjustment. No effect was found for Whites and Latinas.

Table 2.1 Continued

Study	Summary
Bordes-Edgar, Arredondo, Kurpius, & Rund, 2011	A qualitative longitudinal study that examined persistence in 71 Latina/o students. Students had initially been surveyed as freshman 4.5 years earlier. Findings indicate that high school GPA and the decision to continue to attend college were positively related to college GPA. Mentoring became a key factor influencing persistence.
Nunez, 2011	A qualitative study that examined the effects of a Chicano Studies course on the college transition experience of second year Latino students. Findings indicate that taking this course assisted students in processing feelings of isolation and academic inadequacy as well as increasing their awareness and pride in their ethnic heritage. Students reported more positive faculty interactions and felt they had gained a greater ability to appreciate the culture of others.
Nunez & Kim, 2012	A qualitative study that investigated the effects of student characteristics, high school characteristics and state-level factors affected the access for Latino students. Findings indicate that the majority of important predictors are at the student characteristic level rather than the high school or state-level. Further analysis suggests that for Latinos, financial considerations are the most critical in determining access to higher education.

CHAPTER III

RESEARCH METHODS

Introduction

The essence of qualitative research is investigating how individuals interpret their world and how they make, or construct, meaning about their experiences in that world (Lincoln & Guba, 1985; Merriam, 2009). According to Merriam (2009), “qualitative researchers are interested in...how people make sense of their world and the experiences they have in the world” (p. 13).

Qualitative researchers hold the assumption that there are multiple realities (truths, if you will) that are socially defined by the individual who experiences them (Firestone, 1987; Lincoln & Guba, 1985). This study asked participants to reveal their perceptions about the factors that have contributed to their academic success and how each one of them perceived the process of becoming a successful student. Since each participant related their own particular view and experience, and not the viewpoint and/or experience of all undergraduate Hispanic engineering majors, the qualitative approach was the appropriate methodology for this study.

Statement of the Research Question

Three research questions guided this study. Those questions were:

1. How do high-achieving Hispanic students majoring in engineering view their academic success?

2. What strategies do high-achieving Hispanic students employ to be successful?
3. What environmental factors do high-achieving Hispanic students majoring in engineering view as contributing to their success?

Conceptual Framework

The overarching conceptual framework in which this project was situated was student academic success. While there is no single, over-arching theory, per se, that addresses academic success, many of the factors that contribute to a student's academic success have been identified.

Primarily, academic success at the collegiate level has been characterized in terms of student grades. While grades are not the sole defining feature of academic success, they are the fundamental constituent by which student academic success is measured (Pascarella & Terenzini, 2005). High school grades are one of the pre-college educational factors used to predict how well a student will perform academically in college along with scores on college entrance exams and class rank in high school (Astin, 1993; Pascarella & Terenzini, 2005). College grades, along with number and level of courses completed, are utilized as predictors of the likelihood (or not) of a student to be retained and persist to graduation from an institution of higher learning. These factors are also used as predictors of the likelihood of a student's admittance to graduate or professional school (Pascarella & Terenzini, 2005).

Student involvement and engagement also play a highly influential role in determining whether or not a student is considered to be academically successful (Astin, 1993; Tinto, 2006). Students who are an active part of their college community, whether on an academic or extracurricular basis (or both), are more likely to achieve academically acceptable status and successfully continue their higher education.

The purpose of this study was to explore the perceptions of high-achieving Hispanic students majoring in engineering and try and determine what they view as the contributing factors to their academic success. It was anticipated that these factors would include various aspects from their pre-college experiences, as well as both academic and extracurricular features including involvement and/or engagement facets of their college experiences.

Site and Sample Selection

This study employed the purposive sampling method. Purposive, or purposeful, sampling is one of the major characteristics of qualitative research (Bogdan & Biklen, 1998; Gall, Gall, & Borg, 2007; Lincoln & Guba, 1985; Merriam, 2009). This goal of this method is “to select cases that are likely to be ‘information rich’ with respect to the purposes of the study” (Gall, Gall, & Borg, 2007, p. 178). Unlike quantitative research where subjects are chosen at random so that their results may be generalized to a larger population, participants are carefully selected to meet specific criteria under the qualitative paradigm. These carefully selected participants are invited to participate in the

research at hand because of their experience with the subject under investigation.

The data from this study are to be used for the purposes of transferability and not generalization, a hallmark of qualitative research. Transferability, as defined by Lincoln and Guba (1985), is the similarity or fit between two contexts (pp. 297-298). It is left up to the reader to make the decision of what transfers to his or her particular context. It might be that a future researcher who is investigating high-achieving Hispanic students (or other students who are members of under-represented populations) at other types of institutions or in other academic disciplines may feel that these findings could be generalized and applicable to their situation. Whether or not transferability applies concerning the findings from this study to another research context will be up to the future researcher to determine.

Texas A&M has been ranked as a Research University (Boyer, 1987) and has been classified by the Carnegie Foundation as a Comprehensive Doctoral University and Research University with very high research activity (Carnegie, 2009). Participants in this study were undergraduate students from the US, attending Texas A&M University, who self-identified as Hispanic. Each participant had declared some discipline in engineering as a major, occupied at least junior class standing at the time of their interview, and had obtained a GPR of 3.0 or higher (on a 4.0 scale). This criteria was based on previous work by Bonner (2001) – a study conducted to identify the experiences among

academically gifted African American male students in predominantly White and historically Black college contexts. Although his work was with African-American students, his definition was used to frame the definition of high-achieving Hispanic students for this study; namely, they possessed a 3.0 to 4.0 GPR on a possible 4.0 scale. Also used was the same academic classification – junior or higher – for the same reasons Bonner (2001) articulated in his study; namely, “Participants at the junior or senior level [were] solicited due to their prolonged exposure to the institution and for the rich detail they [were able] to provide regarding their undergraduate experiences” (p. 13).

Participants provided proof of their current GPR and classification status at the time of the interview in the form of an unofficial transcript. Transcripts were not collected, but the verification of their GPR and classification was indicated on the information questionnaire each participant completed (see Appendix C). Upper level participants were solicited not only because of their experience at the university, but also because of their experience with successfully navigating the first two years of a challenging academic major as well as the reflective dimension that the passage of time provided when reflecting on their experiences.

According to the US Census Bureau, Texas is one of the most highly ranked states in terms of overall percentage of Hispanic population (Census, 2009). It also has some of the top-ranked universities in the US in terms of engineering schools (see Table 3.1) (U.S. News & World Report, 2009).

Table 3.1
Ranking of Texas Universities in Terms of Top 100 Engineering Schools in the US (U.S. News & World Report, 2009)

Rank	School	State
2	Stanford University	California
3	University of California (Berkeley)	California
6	California Institute of Technology	California
8	University of Southern California (Viterbi)	California
11	University of California (San Diego)	California
11	University of Texas (Austin)	Texas
13	Texas A&M University (College Station)	Texas
13	University of California (Los Angeles)	California
19	University of California (Santa Barbara)	California
24	University of Florida	Florida
32	University of California (Davis)	California
35	Rice University	Texas
37	University of California (Irvine)	California
61	University of California (San Francisco)	California
65	University of California (Riverside)	California
80	University of Central Florida	Florida
80	University of Texas (Dallas)	Texas
87	University of Houston	Texas

Texas is also highly ranked with regard to the number of baccalaureate degrees awarded to Hispanic students (see Table 3.2) (Diverse Issues in Higher Education, 2009). Based on this information, the predetermined selection criteria of upper-level undergraduate students who self-identified as Hispanic that were majoring in engineering at Texas A&M University was deemed appropriate for this study.

Table 3.2
Ranking of Texas Universities in Terms of Top 100 in Baccalaureate
Degrees Awarded in Engineering to Hispanic Students in 2008 (Diverse
Issues in Higher Education, 2009)

Rank	School	State
1	Florida International University	Florida
2	University of Texas (El Paso)	Texas
3	University of Florida	Florida
4	University of Texas (Austin)	Texas
5	California State Polytechnic University (Pomona)	California
6	Texas A&M University (College Station)	Texas
7	University of Texas (Pan American)	Texas
8	California State Polytechnic University (San Luis Obispo)	California
10	California State University (Long Beach)	California
11	University of Texas (San Antonio)	Texas
12	University of Central Florida	Florida
15	San Jose State University	California
17	University of Houston	Texas
19	University of California (San Diego)	California
20	California State University (Northridge)	California
20	University of Southern California	California
22	Texas Tech University	Texas
22	University of South Florida	Florida
24	Florida Atlantic University	Florida
26	San Diego State University	California
26	University of California (Berkeley)	California
26	University of Miami	Florida
30	University of Texas (Arlington)	Texas
32	Texas A&M University (Kingsville)	Texas

Researcher Role Management

I conducted one interview with each of my seven participants for a total of seven interviews. These interviews took place either in my office in Hotard 217, or in a study room in Evans Library, both on the A&M campus. My purpose was to understand (or to try and understand) how they make sense of their academic success. While it was important that they feel comfortable enough in our interactions to be honest and open with me, I strove to maintain neutrality in our interactions during the interview (Merriam, 2009). I did this by asking questions of the participants when I was unclear as to whether or not I understood what they were stating (“I’m not sure I understand. Could you repeat that?” or “Could you give me a little more information about that?”), rephrasing and repeating back to them (“Okay, so if I am understanding you correctly, you are saying _____”), and by being aware of my own reactions to their statements.

One of the ethical responsibilities of a qualitative researcher is to protect participants from adverse affects due to participation in a research project (Merriam, 2009). To provide this protection to my participants, they were identified by a pseudonym of their choosing. During the interview process, in the transcription of the interview and in any quotes or references pertaining to the participant in this writing or any other publication resulting from this endeavor, they were and will continue to be identified solely by this pseudonym. Any demographic information shared about the participant(s) has been construed in such a way as to protect their identity. Along with being “named” only by their

chosen pseudonym, other descriptors are as unidentifiable as possible. The only demographic information communicated is the participants' classification, GPR, college going generation, country of Hispanic origin and major. Any other demographic information shared is expressed in such a way that it cannot be directly tied back to a particular participant. For example, rather than state that "Jenny" is from Smalltown, TX, which has a population of 27 thereby making it possible for someone to figure out who she is, it is expressed as "'Jenny' is from a small town in West Texas" and similar care has been taken with any other possible identifying information. I am the only person who knows which information was acquired from which participant.

A Committee and IRB-approved Informed Consent was obtained from each participant. Each participant had the right to withdraw from the research process at any time during its progression and this right was made clear to each participant. No requests for withdrawal and/or removal from the study were made and any suggestions and requests for changes and/or corrections of interview transcripts were honored immediately.

Emergent Design

Emergent design permits the research design to evolve as information is disclosed (Gall, Gall, & Borg, 2007; Lincoln & Guba, 1985). As new discoveries and relationships unfold, the design and focus of the study can be adjusted to allow the researcher to investigate them without being concerned that purpose of the study has been compromised (Maxwell, 2005). This type of paradigm

requires that a researcher be comfortable with a certain amount of ambiguity in the data collection process, which was not an issue for me. I was comfortable being flexible during this process. Although I had a list of topics gleaned from the research that I believed were important to cover, I “followed” my participants as they determined which topics were covered in detail and which were barely addressed. The depth at which each topic was discussed varied from participant to participant. Although no “new” topics were added to my original list, after the first several interviews, I did find that there were times when the wording with which I phrased my questions needed to be adjusted for clearer understanding by the participant. This adjustment resulted in answers with greater depth and detail from subsequent participants.

Research Design and Strategies

This study utilized a qualitative research design, the essence of which is to explore how individuals interpret their world and how they make, or construct, meaning about their experiences in that world (Lincoln & Guba, 1985; Merriam, 2009). In this case, I was interested in how my participants perceived the process of achieving academic success as Hispanic students majoring in engineering.

Content analysis was the method of data analysis utilized. This type of analysis focuses on the first-person account of an individual concerning their experience(s) with or in the topic of interest (Denzin & Lincoln, 1994; Merriam, 2009). A participant will “share” their story with the researcher. This sharing

may take several possible forms and several possible mediums. It could be a one-on-one interview or the relating of a person's autobiography via audio or videotape or other possible venues such as a written journal. The goal is to understand the meaning that people attach to their experiences (Merriam, 2009). As a category, content analysis contains a broad variety of processes and procedures that are used to interpret the meaning of these stories of participants (Denzin & Lincoln, 1994; Lincoln & Guba, 1985; Merriam, 2009; Schwandt, 2001). The story that conveys this meaning may be relayed or "told" to the researcher in the form of interviews; documents such as journals or other written material; film; or a variety of other materials. It has as its foundation the concept that the words, whether written or spoken, used to describe an experience relay the very personal meaning of that experience for the speaker (or writer). Even though similar words may be used by two different participants, the meaning for each participant may be completely different. What is important is the meaning for the individual participant. In this study, participants were invited to tell me stories about their academic experiences that contributed to their academic success through an interview format. The goal was to gain an understanding of how they viewed their academic success.

Participants were asked to share their experiences concerning academic success as they perceived those experiences. I was not interested in what they thought their experiences should have been or what they would have liked them to be, but what they actually were. I was more interested in the meaning of what

participants relayed to me than I was about how they relayed it. In other words, I examined each participant's account of reality for what I believe is the meaning of what they shared with me, not the words used to express that meaning. I used the data analysis measures detailed below to deduce concepts and themes that I feel represent the reality I inferred from their stories.

Data Collection

Data collection was accomplished through the use of semi-structured interviews and a brief demographic questionnaire (see Appendix C). The questionnaire was a short instrument that collected information such as university, major, GPR, classification, hometown, size of hometown, high school, size of high school, etc. It also had a box for me to check that indicated that the participant provided the proof of their GPR and classification status mentioned above. The questionnaire was completed (a) to ensure this information was collected for each participant, and (b) as a basis for establishing rapport by providing basic information that was covered/reviewed with each participant during their interview.

Semi-structured interviews contain both structured and unstructured interview elements (Merriam, 2009). Typically, interview questions are flexibly worded and are usually not presented in any specific order. The same information is wanted from all participants, but the acquisition of that information, in terms of wording and presentation, is at the discretion of the researcher. The interview itself "feels" casual and has a conversational tone. During the

interviews with my participants, I employed this process and allowed the interview to unfold as a casual conversation, guiding the interview with a list of topics to be covered. Interviews lasted from approximately fifty (:50) minutes to one hour and thirteen minutes (1:13) and were audio-recorded for transcription purposes at a later time. Transcriptions were professionally done and audio files used by the transcriptionist were destroyed upon verification of transcript quality (by myself) and receipt of payment for services rendered.

Interview Protocols

A semi-structured, also called guided, interview process was employed in this study. This type of interview does not have an ordered, formal list of interview questions but is more conversational in style (Merriam, 2009; Patton, 1990). This does not mean that the interview consists of random questions with no focus. Topics of interest, usually obtained from the literature, form the basis of the interview. Answers to questions are freely pursued in a conversational style by the researcher. This pursuit may be lengthy or short, depending on the information conveyed and the willingness of the participant to continue discussing the topic.

A list of topics to be covered was gleaned from the literature. They were not presented in any specific order and covered a variety of information (as outlined in Patton, 1990). Some questions covered experience or behavior concepts, while others dealt with participants' values, opinions and feelings.

There were questions that dealt with factual knowledge and demographic information.

Because of the format of this type of interview, I did not have a set number of questions that were asked. My purpose was to grasp (or try to grasp) the understanding my participants had about the essence of their academic success at the undergraduate level. I was interested in eliciting responses that conveyed this understanding of their experience and not mere facts about their undergraduate journey.

It was my experience in the pilot study conducted that many of the topics I wished to cover would arise spontaneously from the questions asked. Questions were phrased in a conversational, non-threatening manner: “I am curious about what high school was like for you. Tell me about your high school experience.” or “Tell me about high school.”

I had a checklist of topics (see Appendix E); however, the checklist of topics did not constrain the inclusion of ideas and topics that spontaneously emerged during the interview process. Topics covered included: issues of academic preparation for higher education; career and personal goals; family educational background, support, expectations, and pressure; socioeconomic status; financial aid; campus involvement; peer support; faculty interaction and/or mentoring; stereotyping/discrimination; conflicting cultural experiences; enrollment and work status; and identity development concepts.

Participants were provided maximum autonomy to respond to questions (Lincoln & Guba, 1985; Merriam, 2009; Patton, 1990). Although it occurred very infrequently, if a participant expressed or exhibited reluctance to discuss a particular topic or topics, that reluctance was respected and questions regarding that topic ceased.

Assuring Trustworthiness

Reliability and Validity are the constructs used to determine the dependability and accuracy of data (Spatz, 2005). They are used, in part, to gauge the quality of research. In the quantitative arena, reliability refers to the likelihood of results being replicated under the same conditions, while validity refers to how representative the data are of the phenomenon being investigated. They are primarily expressed as some numerical value.

In the qualitative arena, however, they carry a complementary but different charge due to the nature of qualitative research (Merriam, 2009). In qualitative research, validity, often referred to as internal validity, deals with how closely (or not) the findings represent the experience of the participant in the phenomenon being explored. Reliability, often referred to as dependability or consistency, references the connection between data and findings. Whatever terms are used, the concept remains: research should meet standards of quality and rigor.

Lincoln and Guba (1985) suggest that the proper perspective from which to evaluate qualitative research is not validity and reliability, but rather that of

Trustworthiness. This perspective encompasses four criteria: confidence, or truth value; applicability; consistency; and neutrality (Lincoln & Guba, 1985, p. 218). Instead of addressing the rigor and quality of my research in the conventional terms of reliability and validity, I utilized Lincoln and Guba's Trustworthiness route and evaluated it in light of the four criteria. In doing so, I used various methods and strategies including some suggested by Gall, Gall, and Borg (2007, pp. 474-476), Lincoln and Guba (1985), and Merriam (2009).

Truth value. Lincoln and Guba (1985) characterize truth value as the confidence the researcher has both in the findings as viewed by the participants and the context in which the research took place (p. 218). In order to be confident that my findings were an accurate representation, I utilized several strategies. I made every effort possible to truthfully and accurately represent the experiences of my participants. As much as possible, I have used direct quotes, in context, to let the participants "speak" for themselves in my findings.

I have engaged in member checking (Gall, Gall, & Borg, 2007; Lincoln & Guba, 1985; Merriam, 2009) the process in which research participants (members) are asked for their feedback and input regarding accuracy of representation. At all stages from the interview process forward, participants were asked to review my data for accuracy. Interview transcripts were provided to participants to insure that the transcript of the interview accurately reflected the participants' perceptions of their responses to the interview questions. As utterances were coded and themes began to emerge, participants were again

asked for their input and feedback with regards to how well (or not) they think the coding and themes reflect their experience(s). Participants were also invited to check the themes and my interpretation of them for accuracy and comprehensiveness. If at any time during the process participants found errors or questioned the accuracy of my interpretation, I corrected or adjusted these to their approval.

I also engaged in peer examination (Gall, Gall, & Borg, 2007) asking two colleagues who are experienced in qualitative data collection, and my chair, to review portions of my coding of interview transcripts for accuracy and agreement. The goal of utilizing these strategies, particularly member checking, was to insure that my findings are an accurate representation both of my findings and of the context in which my research took place.

Applicability. Lincoln and Guba (1985) depict applicability as “the degree to which the findings of an inquiry may have applicability in other contexts or with other respondents” (p. 218). Also referred to as transferability, which has been addressed previously, the similarity of the context of my research findings to another context is ultimately up to the reader of my findings and/or other interested parties to decide. To help the reader make this determination, I have engaged in thick, rich data collection and description (Gall, Gall, & Borg, 2007), providing as much detail as possible about the context and environment in which my participants were interviewed and the experiences that

occurred in that context and environment. I also took notes about the interview process and any observations I made of the participants' behavior at that time.

While the usefulness of a qualitative study is, in the end, determined by the reader, my intent was to inform and enlighten said reader about undergraduate Hispanic college students who have been successful as high-achieving engineering majors and the factors to which these students attribute their success. My hope was that common factors would emerge that would provide a starting point to use in conversation and possible support endeavors to assist other members of this group of historically under-represented students in achieving a similar success in the future.

Consistency. Consistency refers to the likelihood that similar research findings would emerge if the same study was performed with the same, or very similar, participants in an identical, or very similar, context (Lincoln & Guba, 1985, p. 218). To address consistency I utilized an audit trail (Gall, Gall, & Borg, 2007; Lincoln & Guba, 1985). Samples of interview questions, as well as transcripts and questionnaires from all participants were kept in my personal files. This was done to preserve the integrity of the research process and to allow other researchers to inspect the information, should they so desire.

I also made use of representativeness checking (Gall, Gall & Borg, 2007). As much as possible, I sought to obtain participants that are typical of my subpopulation of interest rather than just selecting participants because they were conveniently available.

Neutrality. The concept of neutrality addresses the concern of researcher objectivity: to what extent can the researcher's findings be attributed to the participants and the context of the study and rather than the perspective of the individual researcher (Lincoln & Guba, 1985)? To insure that I accurately represented the experiences of my participants I engaged in member checking and peer examination, as detailed above.

Managing and Recording Data

All interviews were audio taped and professionally transcribed, yielding 7:05:22 hours and 274 pages of data. Files of the digital recordings and transcriptions were saved in an electronic format for clarification and any future needs. Documents that were collected were secured in the researcher's office. Data was analyzed through methods described in Chapter IV of this study.

Data Analysis Strategies

Content analysis was the primary data analysis procedure. Content analysis, as previously detailed, focuses on the first-person account of an individual concerning their experience(s) with or in the topic of interest with the goal being to understand how participants make sense of their experience (Dentin & Lincoln, 1994; Lincoln & Guba, 1985; Merriam, 2009).

All segments of the transcripts were coded and organized into categories for further analysis. Words, phrases and concepts were marked and coded. Coding is an analytical strategy that seeks to reduce data to its most general form (Coffey & Atkinson, 1996). Codes are not necessarily linked to data of any

particular size; a code may be associated with a word, a phrase, a sentence, a paragraph, etc. Coding was used both to label a section of data as well as to retrieve sections of data with the same or similar codes. This coding then helped me compile all the instances of these codes for individual participants as well as across participants for further investigation.

The linking together of fragments of data that share some common features or meanings produces categories (Coffey & Atkinson, 1996). As data is coded, categories emerge. Similar codes are grouped together and tentatively labeled under a more inclusive heading (Lincoln & Guba, 1985; Merriam, 2009). These portions of data may or may not remain in a category and the title of the heading itself could change as more data from additional participants becomes available or after further reflection on the part of the researcher. This process continued until all data had been analyzed to this point and/or saturation (no new information is forthcoming) was been reached (Lincoln & Guba, 1985).

Themes are the overarching classifications that emerge from comparing categories. Similar categories were grouped together to form themes. Again, categories might or might not remain in their initial groups and the title could change. From this comparison, concepts, themes and sub-themes emerged that suggested how these high-achieving students view their academic success. These results are presented in Chapter IV. A conceptually clustered matrix (Miles & Huberman, 1994) was utilized to present the themes and sub-themes that emerged in a descriptive manner (see Appendices F-I).

Member checking (Gall, Gall, & Borg, 2007; Lincoln & Guba, 1985; Merriam, 2009), a key criterion of this type of analysis, is the process in which research participants (members) are asked for their feedback and input regarding accuracy of representation. As utterances were coded and themes began to emerge, participants were asked for their input and feedback with regards to how well (or not) they think the coding and themes reflect their experience(s). Participants were also invited to check the themes and my interpretation of them for accuracy and comprehensiveness. Any instances during the process where participants found errors or questioned the accuracy of my interpretation was corrected or adjusted to their approval.

Pilot Study Data

A Pilot Study was conducted during the Spring semester of 2009 as a partial course requirement for *EHRD 655: Qualitative Research Methods* with Dr. M. Carolyn Clark and as preparation for this dissertation research. The purpose of the Pilot Study was to investigate the success of high-achieving Hispanic students in the STEM fields. My target population was undergraduate students who were classified as sophomores or higher at Texas A&M in the STEM fields who had a GPR above 3.0. The goal was to identify factors that contribute to their academic success. Through a semi-structured/guided interview process, the four participants discussed their perceptions of their educational experiences at both the high school and the undergraduate levels.

During the interview process, participants were asked to reflect upon several areas of their lives: their family background; their educational background; their college decision and major process; their adjustment, both academically and non-academically, to college life; their involvement, both academic and extracurricular, in high school and college; their future plans; the challenges faced and the support/adjustment strategies used to deal with those challenges; the overall culture at A&M; diversity/stereotyping issues and monetary/financial aid issues. These issues of interest had been gleaned from a review of the literature in this area. If a topic of interest did not come up in conversation with a participant, then a direct question regarding that topic was posed to the participant. All interviews were audio taped and a transcription was done. Using the content analysis method, interviews were analyzed for major themes.

From this exploration, three themes emerged: fidelity, perseverance and community. Fidelity carries with it not only the concepts of duty and obligation, but also of loyalty. Students repeatedly spoke of the duty and obligation they felt to their parents, siblings and extended family members to do well in college. "I've made it my duty to make sure that my parents didn't have to pay anything like at all," said one participant when asked about the financing of his education. When asked how she chose A&M another said, "...going to a university outside of your hometown will help you expand more....It'll broaden your expectations or your limits [so] that your, that your siblings can follow...."

Students also spoke about sense of community and how important it was to them, both before coming to A&M and while here. "...you come to campus and you feel welcomed....everybody's pretty much in the same boat when you get here freshman year....we all just kind of stuck together." All spoke of homesickness to one degree or another. "I annoyed my mother by calling her every day, several times a day....I still do that now," said one. "I talk, I call my grandparents, I call my grandma and my family every day," said another. All have adjusted, however. "...my life is here now...."

Perseverance was the predominant theme that emerged to which the participants' attributed their success. All spoke of the hard work they had put in to reach the goal of attending A&M. "I worked my butt off," one young lady stated emphatically. All mentioned taking AP (Advanced Placement) and/or College Dual Credit courses in high school to help them prepare for college. Beyond working towards academic goals, all mentioned overcoming obstacles and remaining focused on their goals. "Keep studying. Whatever trials there are, just keep going. Don't stop. Just, just achieve your goals," said one. From another, "...a lot of times we let our present state just kind of limit us and trap us as far as what we're going to do, why we should do it, but if you just keep your eyes on where you're going, what you want to eventually achieve, it'll really help you put things into a greater perspective....Push past any obstacles you may face....It may delay you, but it's only to strengthen you...."

The pilot study served as scaffolding for the refinement of this current study which had a greater number of participants from a single institution and where all participants specifically represented engineering disciplines. In addition, participants had reached junior or senior classification in terms of their academic progress.

Summary

I am intrigued by student behavior, especially the behavior of students who are academically successful. Above all, I am fascinated by students from minority backgrounds who are academically successful because minority students generally fall behind their White counterparts in terms of educational attainment (Jaschik, 2008b). I find myself wondering what it is that makes these particular students successful. Minority students who are successful in demanding academic fields such as engineering capture my interest even more. To that end, this research project investigated the perceptions of high-achieving Hispanic undergraduate students in engineering regarding their academic success. It is my hope that this investigation has further expanded the findings from my pilot study and provided me (and future readers) a better understanding of how these students view the factors that have contributed to their high-achieving status. Transferability (Lincoln & Guba, 1985) might also occur whereby the findings that have emerged can be applied to other students in similar educational situations with the hope of enhancing their academic success.

CHAPTER IV

RESULTS

Introduction

This chapter details the findings that emerged from my investigation. I begin by presenting demographic information about each participant. Each participant is identified by their chosen pseudonym and the information presented includes information from the Participant Questionnaire (Appendix C) as well as information gleaned during the interview process. Then, I will introduce the themes that surfaced during the data analysis process (Lincoln & Guba, 1985; Merriam, 2009). These themes are: *(a) Versatility: That's a different way of seeing things that I never thought of before;* *(b) Individuality: I've gotten more of a sense of who I am;* *(c) Essence: That's just how we are;* and *(d) Successful Study Strategies: I realized if I wanted to continue not having to relearn and relearn, I should just learn.*

Population, Sample and Participants

The study began in the summer of 2010. Interviews began in July of 2010 and were completed in April of 2011. Participants were recruited via e-mail (see Appendix A) and, at the time of their interviews, were undergraduate students at Texas A&M University, College Station, TX who held a U3 (Junior) or higher classification. All participants had a 3.0 or higher GPR (on a 4.0 scale), self-identified as Hispanic, and were majoring in engineering.

The participants for the study (Table 4.1) included three male and four female students. Five listed Mexico as their country of Hispanic origin, while one listed Puerto Rico and one listed both Puerto Rico and the Dominican Republic. Five of the seven participants were first generation college students, while two were not. GPR's for the group ranged from 3.0 to 3.82, meeting the criteria of "high-achieving" as utilized by Bonner, 2001. Participants cited a variety of majors within the College of Engineering. One participant had a double major – computer engineering and applied mathematics.

Table 4.1
Participant Background Summary

Participant	Major	Year	GPR	Country of Hispanic Origin	First Generation College?
Andres	Electrical Engineering	U3	3.82	Mexico	Y
Crystal	Mechanical Engineering	U3	3.0	Mexico	Y
Itzeth	Computer Science	U4	3.3	Mexico	Y
Joey	Computer Engineering	U4	3.3	Mexico	Y
Julia	Mechanical Engineering	U4	3.57	Puerto Rico	N
Luis	Computer Engineering & Applied Mathematics	U4	3.56	Puerto Rico & Dominican Republic	Y
Madeline	Industrial & Systems Engineering	U4	3.17	Mexico	N

Methodology Summary

Initially, participant recruitment was attempted through the Hispanic student engineering organizations on the Texas A&M campus – the Society of Hispanic Professional Engineers (SHPE) and the Society of Mexican American Engineers and Scientists (MAES) – during the latter part of the spring semester of 2010. Presidents of these organizations were identified and contacted about the recruitment of potential participants for the study. With the consent of the presidents, the IRB approved e-mail was distributed over the list-serv of the organizations. Zero responses were received from potential participants.

In the fall of 2011, participant recruitment was again attempted through SHPE and MAES. Again, presidents of these organizations were identified and contacted about the recruitment of potential participants. Again, the IRB approved e-mail was distributed over the organization list-servs, and, again, there were no responses from potential participants.

Successful participant recruitment was accomplished through two other avenues. The first avenue was through a program offered by the College of Engineering at Texas A&M University. Upon hearing about the proposed research and difficulty in recruiting participants, Mr. Matthew Pariyothorn of the Undergraduate Summer Research Grants (USRG) program offered his assistance. He identified five participants in the USRG program of 2010 who met the necessary qualifications and personally sent them the IRB approved

recruitment e-mail. Four individuals responded indicating their interest, and all four participated in this study.

The second avenue was through direct contact with former students. After an in-depth discussion and with the approval of my chair, I contacted students who had previously been enrolled in the courses I teach who met the necessary requirements for participation in the study during the spring semester of 2011. Care was taken to insure that no coercion to participate could be inferred by the students. All students contacted had been enrolled at least a year prior to the spring of 2011; none were currently enrolled in my classes nor was it anticipated that they would be enrolled at a later date. Eight students were sent the IRB approved recruitment e-mail attached to a personal e-mail inviting them to participate and reminding them of their previous enrollment in my class. Of these eight, three responded indicating their interest. All three participated in this study.

Interviews took place on the Texas A&M campus and were conducted either in my office (Room 217, Hotard Hall) or in a study room in Evans Library and were audio recorded. Every effort was made to ensure that the privacy of the participants was protected during the interview and that participants were comfortable in the physical environment of the interview as well as during the interview itself. The IRB approved consent protocol was followed for each participant and the informed consent obtained. Each participant was provided a copy of their signed informed consent form. All participants were informed about

the voluntary nature of their participation and their right to withdraw from the study at any time. All consent forms, audio recordings and transcripts have been securely stored. This secure storage will be maintained for the requisite three years.

Member checking, as detailed in Chapter III, was employed to ensure the accuracy of the interview transcripts as well as themes that emerged during the data analysis process. As previously stated, all interviews were audio recorded and professionally transcribed. Upon receipt of payment for transcription services, the audio file provided was destroyed with my consent and supervision by the transcriptionist. Interview transcripts were reviewed thoroughly by the researcher to ensure accuracy and to correct any typographical or transcription errors by comparing them to the audio recordings. Participants were then provided a copy of their transcript to review and to make any changes or deletions they desired. Based upon participant feedback, minimal changes were made, primarily correcting the spelling of various towns and Spanish words. Changes made did not affect the content of the interview.

Transcripts were then converted into a text format and printed on 4x6 inch note cards. This resulted in 3,100+ note cards. These note cards were initially coded and then sorted into 19 general subject areas. General subject areas were further sorted into 182 topics to provide a generalized overview of the information the participants had provided. These data were then further coded and analyzed and compiled into categories until themes and sub-themes

emerged. Themes and sub-themes were then placed into a conceptually clustered matrix (see Appendices F-I). The themes that emerged represent the perceptions of these seven high-achieving students. These themes are (a) *Versatility: That's a different way of seeing things that I never thought of before;* (b) *Individuality: I've gotten more of a sense of who I am;* (c) *Essence: That's just how we are;* and (d) *Successful Study Strategies: I realized if I wanted to continue not having to relearn and relearn, I should just learn.* Each of these themes will be further explored in the following sections.

Theme: Versatility – That's a Different Way of Seeing Things that I Never Thought of Before

Through the interview process it became clear that these students are accustomed to learning and adjusting due to the challenges that experience brings. They have the ability to analyze what is going on around them and to determine whether or not a change is necessary on their part. If a change needs to be made, they make it; if one does not need to be made, they stay their current course.

All of them have experienced family moves in their lives. These moves took place at various points in their lives – some early, some more recently, and others at various points in between. Andres spoke of an early move from Mexico to Port Isabel, Texas, where his family has since resided, saying, “...since I came from Mexico, since I was like 3, I lived there my whole life....”

(INT-Andres.4/1/11.p3). Crystal relayed constant moves during her early childhood stating:

I was born in Brownsville, and then I lived in San Benito for some time, which is like a city within the Valley – they're all in the Valley. And when I was younger, I know my family would go up north and work for some time and come down. So I've gone to Ohio too for some times. I know I went to elementary at some point in Houston. And in second grade, I lived in San Benito at the time, and that's when I moved to Weslaco.... (INT-Crystal.4/1/11.p4).

Others, like Julia and Itzeth, recounted moves that came at a later time during their adolescent years and the challenges brought by those moves. Julia's family moved during her sophomore year of high school after having lived in Miami, Florida, all her life: "My dad got a promotion with the company he worked at, and the company is centralized in Dallas, and so he had to – we came here" (INT-Julia.7/21/10.p2). This move meant that she left a private school, where her graduating class was comprised of approximately 70 students, to attend a public high school with a graduating class of approximately 570 students. This move also meant change in culture and lifestyle for her: "It was really different....It was a completely different atmosphere" (INT-Julia.7/21/10.p2) where life in Texas moved at a slower pace than it did in Miami.

Itzeth's family moved from Mexico to join her dad in the US when she was a freshman in high school. Because the move occurred during her high school years, she was forced to repeat her freshman year of high school. She shares: "I was one year behind because they couldn't...if they would put me in a sophomore classification, I wouldn't obtain all my credits, so I had to start all over since the beginning" (INT-Itzeth.4/3/11.p4). She tells about the challenges of having to take all her classes as an ESL (English as a Second Language) student during her first year despite having taken private English classes in Mexico and having to learn how to interact appropriately with teachers while communicating in her second, different language. Itzeth also had to become accustomed to not being at the top of her class. She did well in her high school classes, but not as well as she had done in Mexico: "I learned not to be number one always like I was before" (INT-Itzeth.4/3/11.p7). Having lived in the same place for so many years of her life, she had formed deep friendships that she also missed, and she faced the challenges of forming new friendships.

While the culture in the Valley was primarily Hispanic, it was still different than the Hispanic culture she had left behind in Mexico. She spoke about the differences in the culture, "it was just really different, even though it's so close" (INT-Itzeth.4/3/11.p6) and how the Spanish spoken in her new locale was not the same as the Spanish she was used to speaking. Gangs were also an issue she had to become accustomed to dealing with, along with the size of her new city compared to the one she had come from.

One participant recounted moves that came on a regular basis. Coming from a military family, Luis experienced frequent moves up until his senior year in high school, sharing, “My father is in the military so we’ve moved around a lot” (INT-Luis.7/26/10.p3). He spoke about the places he has lived, as well as those he has visited – Europe, the West Coast of the US – and various military bases where his family lived before settling in Killeen, Texas, just before his senior year of high school. Due to the repeated moves during his earlier years, Luis considers himself to be more international than American in his perspectives and related the challenges of learning how to deal with the stereotypes of the high school he attended in Killeen. Handling these stereotypes was particularly frustrating for him because he felt that he was being stereotyped as a Mexican, when he identifies his Hispanic origins as Puerto Rican. He remembers, “I have nothing against Mexico but I’m Puerto Rican. I’m Hispanic, but get it straight. Don’t run those stereotypes on me” (INT-Luis.7/26/10.p38).

As demonstrated by their ability to successfully adapt during these geographical moves, these individuals have learned to adapt to their circumstances and surroundings. During the interview process, this versatility became especially evident in three sub-themes that emerged: (a) *Undergraduate experience: It turns out that college is for me*; (b) *Self: Here I’ve been able to grow myself*; and (c) *People: I realized I wasn’t alone*. These sub-themes point to three primary areas where the participants indicated through the

sharing of their stories the necessity of modifying their behaviors and perceptions to become successful undergraduate college students.

Sub-theme: Undergraduate experience – It turns out that college is for me. As denoted by their GPR's, these students have had an academically successful undergraduate experience at Texas A&M. From this, it might be assumed that these students had always had intentions of going to college, majoring in engineering and attending A&M. Their narratives, however, show that this is not the case. The desire and goal to attend college and to major in engineering, for most, was a somewhat easy decision to make. Texas A&M as the institution to attend was often their secondary choice, made when important considerations such as cost of attendance and financial aid came into play.

While some of the participants had always had the intention of attending college, others came to formulate this as a goal at a later stage during their K-12 education. Crystal remembers middle school as the time when this goal, previously somewhat nebulous, solidified. She shares, "...maybe middle school....Because I always kinda knew I was gonna keep going....I knew in the back of my mind that like I was gonna do more than just graduate from high school" (INT-Crystal.4/1/11.p6). Luis and Andres, did not seriously consider college as an option until the later part of their high school years. Luis was not necessarily "anti-college" but states: "I didn't really have any goals set for my future. I kind of just thought construction worker or something else" (INT-Luis.7/26/10.p6). He seriously considered going straight from high school to

working in construction, a field where he felt he could easily make good money. His AP calculus teacher not only changed his mind about college, but also encouraged his desire to pursue engineering as a major. He shares, "...after experiencing the awesome teaching that they offered and my experiences in my advanced mathematics and physics courses, I thought engineering was definitely a way to go" (INT-Luis.7/26/10.p6).

Andres had a vague awareness that college was something he should do, but he did not think seriously about it. He relates: "I had it in my head – to gotta go to college – but I wasn't thinking about it – I thought it was just gonna happen one day" (INT-Andres.4/1/11.pp6-7). During his senior year of high school, an older sister who was a student at the University of Texas influenced him to seriously consider college: she went to college; therefore he must go, too. He attributes his attendance at an institution of higher education directly to her.

For other participants, attending college has always been on the educational horizon. Julia and Madeline, the daughters of college graduates, have always "known" that college was in their future. Each with one parent who is a faculty member at a four-year institution, attending college for these two participants was always a given. In their family experience, college was simply the next, automatic, step after high school graduation.

Joey and Itzeth, also, were aware of their college-going futures from an early age. A college education is viewed by these two participants as the way to get a better job and to improve the financial standing of not only themselves, but

that of their family as well. As first generation college students they are aware that they are forging a new path for others such as siblings and cousins. Itzeth discloses, "...I hope I'm setting an example, and I mean my parents as well, you know, for my uncles and my aunts to see that it's fine, that I'm good, that I didn't went crazy, I didn't get pregnant. And you know, I can get a better job" (INT-Itzeth.4/3/11.p31).

While most of the participants had at least considered attending college as a possibility for their future, attending Texas A&M was not even on their collective radar until late in their high school experiences. Asked how she picked A&M, Crystal, who was not aware of A&M until her senior year, sums it up:

It was kinda random. Just like many other students, I never knew where I wanted to go or what I wanted to do. But I had friends that were coming over here, and I guess...like I say things just happen for a reason, and I say "okay, try to go with the flow and like see where it goes." But, yeah, I have friends applying to like A&M so I was like I don't care, I guess I'll apply. And I did and like I didn't really apply to any other university. (INT-Crystal.4/1/11.p5-6)

For some of the participants, Texas A&M was their "safety" or backup school. Andres was a University of Texas (UT) supporter because of family. His older sister was a student there during the time he was making his college-going decisions. His intent was to join her in attending college at UT. The decision to

attend A&M was primarily influenced by financial considerations. He shares, “...so A&M was the best package, so that’s why I came to A&M....I didn’t start thinking about A&M until a month before school ended. I never been to campus or anything, I didn’t know anything about A&M” (INT-Andres.4/1/11.p8).

Madeline, also, had intended to attend UT; it was her first choice. Accepted to UT in general, she was not accepted into her desired major of business because of the immense popularity of that particular major. She was offered the opportunity to attend UT as a liberal arts major, an option she found unacceptable. At A&M she was granted admission and accepted into the Mays School of Business, an offer she accepted without ever having seen the university. She later changed her major to engineering.

Itzeth and Luis were influenced by high school personnel at their respective schools. Itzeth had a timely encounter with a college recruiter. This encounter not only influenced her decision to come to A&M, but also helped her overcome what she felt were the limited expectations others had of her. She elaborates:

I had no idea about the universities in Texas....And because being a student from Mexico, the district, like the teachers and counselors didn’t really think that we could do better than just staying in the Valley. And so it was just by chance, I guess. I talked to a recruiter that was going to La Joya....and the recruiter....started just asking us if we had applied for college and where we had had applied. And he was the one that

introduced me to A&M really. And I applied, and I got in. It wasn't because I wanted to be here. I just wanted to go to a good college, and I started asking my teachers which college they would recommend, and which college they thought was good. And A&M and UT were in the top from all of them. (INT-Itzeth.4/3/11.p8)

Following up on recommendations given to his father, Luis asked school personnel about A&M and its reputation. He states: "...my father, who's in the military, a lot of his friends told him that A&M is a good university. Several school officials in my....high school told me A&M is a great place, just try it out....so I decided to apply" (INT-Luis.7/26/10.p5).

Once the decision had been made to attend A&M, participants were generally excited to begin their experience. As Itzeth put it, "I liked it, even though it was huge....I just wanted to be here already" (INT-Itzeth.4/3/11.p9). Joey felt that he had found his niche, stating, "It was great. It was, compared to high school, it was pretty much everything that I could hope for. Now the first thing I did is I emailed some of my old teachers and I said 'Remember how I didn't really like high school? Well, it turns out that College is for me'" (INT-Joey.7/29/10.p8).

Given their high GPR's in a major that is considered to be academically demanding, it might also be assumed that these students were passionate about engineering as a discipline from the beginning of their educational endeavors at Texas A&M. Again, this is not the case. As they became more familiar with

their various degree plans and their personal likes and dislikes as well as their individual strengths and weaknesses, all but one of the participants modified their declared major in some way.

At the time of our interview, Crystal was the only participant who was still in the major under which she was admitted to Texas A&M – mechanical engineering. Interestingly, however, not a lot of thought was given to her choice of major. She did not have a clear understanding of what engineers “do,” and, in response to the question “how did you pick engineering?” she reveals:

It just kinda happened to me. Yeah, because well, math and science are my strongest subjects, and so it would make sense for me to pick engineering. But I don't know, like I would say I like to do a lot of things. And I think I would be interested in anything that I would do, like no matter what it is or was or whatever. But I don't know, like it just kinda happened....And I didn't knew it was like difficult or how challenging it could be or nothing, you know, just like, oh, it sounds cool, so like yeah, I'll do it. I'll try it. (INT-Crystal.4/1/11.p7)

Madeline had originally applied to Texas A&M as a business major. However, she changed her major to industrial engineering when contacted by the College of Engineering in April of her senior year of high school and prior to her actual enrollment at A&M. She shares, “They were just asking if I was sure that I wanted to do business, and I was like, no, I'll just give engineering a try, I guess, so I did” (INT-Madeline.7/23/10.p3). So far, she's been very happy with

her choice, saying, "...it was probably one of the best decisions I've made in my little life" (INT-Madeline.7/23/10.p4). The daughter of an industrial engineering professor, she chose industrial engineering somewhat reluctantly, not really wanting to be tagged as someone who was just following in her father's footsteps. She decided that industrial engineering was a good combination of business, which had interested her previously, and engineering, sharing: "...I kinda just wanted a challenge, I guess, and I got a challenge" (INT-Madeline.7/23/10.p4).

Andres and Joey originally applied and enrolled as one type of engineering major and changed to different type of engineering. For Joey, these changes were in closely related engineering disciplines, moving from computer science to computer engineering, a "very small difference" (INT-Joey.7/29/10.p1), he says. Andres' change was not as closely related, changing from computer engineering to electrical engineering after his first semester. Although electrical engineering has required a lot of work, Andres is happy with his decision saying, "I see other majors where I could be that are easier, but electrical engineering was like challenging and I like a challenge. You know, every day I learn something new, so that's why" (INT-Andres.4/1/11.p10).

Itzeth's change of major could also be categorized as a move between closely related disciplines – biological and agricultural engineering to computer science. Initially not admitted into the College of Engineering, she chose to take engineering courses where she could get them, to hopefully expedite her move

to computer science. She conveys, "...the person that I talked to said that I could start as an ag engineering major because they would have like the same basics and I wasn't gonna have any trouble registering for those classes, so that's what I did" (INT-Itzeth.4/3/11.p10). After one semester, she was able to change to computer science, her desired major in the College of Engineering. It wasn't easy, she relates, "So I was really pressured because I just wanted everything to be good, I wanted everything to be in its place, so I just wanted to get good grades and be able to transfer as soon as I could" (INT-Itzeth.4/3/11.p11).

Julia and Luis transferred into the College of Engineering from other colleges and departments. Julia was admitted to A&M as a math major, but knew before she began her first semester that she wanted to change to engineering. This process took her two semesters to complete. During this time she had to demonstrate that she was capable of performing at the academic level required of engineering majors.

Luis had an even tougher struggle to get into engineering. Admitted as a general studies major, he had to pass a required math class to move into his chosen major. He explains:

...they told me, before we accept you into the College of Engineering, I had to take, first, a Math 150, which is pre-calculus for engineers. And, if I remember correctly, that, it was probably still the biggest class I've ever had here at A&M....it was a weed out course because, I mean,

engineering is really competitive....So they purposely made this entry course difficult because other people who had already gotten accepted initially into the College of Engineering, straight from high school, they're already intelligent. But the rest of us that didn't achieve the level of mathematical competency, who had to make it up in pre-calculus, they wanted to weed out the ones who actually weren't serious....I mean, it was pre-calculus, that's not hard stuff. But he made it difficult. He made it very difficult. (INT-Luis.7/26/10.pp7-8)

On the way to being admitted into engineering, he, too had second thoughts about which area to study. Initially interested in mechanical engineering, he finally decided to go into computer engineering with the later addition of a double major in applied mathematics.

A final area of their undergraduate experience where participants indicated a change in perception over their time at A&M was in their view of financial aid. An important factor for many of them in their decision-making process of where to attend, those participants who received financial aid were especially conscientious about the type of aid received. Because five of the seven participants were low SES, first-generation college students they were eligible for the Regents' Scholarship Program at Texas A&M. This program awards eligible students substantial financial aid that consists primarily of scholarships and grants, with minimal to no loans. Several of the participants stated that they would not have initially chosen to come to A&M if the financial

aid they were offered had consisted principally of loans. Joey, who would have most probably made a decision to go elsewhere, states: "...my freshman year I just made sure that I had a good financial aid package, and I had to have it, so yeah. So I probably would not have gone to a school that didn't give me near a full package" (INT-Joey.7/29/10.p42). Crystal echoes that sentiment, saying, "...I know that Regent Scholarship is a big chunk....So without that, I may have thought twice about coming here, yeah" (INT-Crystal.4/1/11.p37).

This viewpoint underwent a shift during their time at A&M as evidenced by Itzeth and Joey. Joey's perspective altered during his time at A&M. He relates, "...now I'm a little bit more comfortable with the idea of a loan. I understand it is probably just a necessary evil and you have to pay it off eventually. And as an engineering major, I probably would have gotten a good enough job that I probably could have paid it off fairly quickly" (INT-Joey.7/29/10.p41). Itzeth indicated that despite the urging of a high school teacher to consider loans if necessary, she would not have come had her initial financial aid award primarily consisted of loans, saying, "...I was still hesitant about getting loans. So I think it would've affected my decision greatly" (INT-Itzeth.4/3/11.p 36). Her thoughts on loans as she comes closer to graduation and is looking back are different: "...I guess now I would get as many loans as I need if my financial aid would just disappear. I would get loans, I wouldn't quit school" (INT-Itzeth.4/3/11.p36).

From their narratives, it is clear that participants had assessed their undergraduate experiences and made fitting changes where they thought necessary. The personal importance of earning a college degree was solidified by their individual experiences. Through these experiences, they seriously evaluated the suitability of their choice of majors with some electing to fine-tune their choice to one they felt was a better fit for them, while others changed majors or added additional majors. One of the areas where an evident shift in perception took place was in their views on loans as a part of a desirable financial aid package. Participants clearly shifted their thinking about loans, previously seen as a “deal breaker” for most of them, to an acceptance of loans as part of a financial aid package that ranged along a continuum of “necessary evil” to “no problem.”

Sub-theme: Self – Here I’ve been able to grow myself. Another area of change for participants was in their sense of who they have become. This change was particularly evident in two domains: their thoughts about their future and their awareness of personal growth.

All the participants realize that their future is standing wide open in front of them, even if they are not sure what they want that future to bring. They are trying to decide what steps to take next. No one intends to return “home” after graduation. Itzeth shares, “...from here I wanna move to San Antonio, I don’t wanna go back home” (INT-Itzeth.4/3/11.p23), a sentiment most of them share. Their experiences at A&M have exposed them to the possibilities a future with a

degree in engineering can hold and they are wanting to explore those possibilities.

At the time of the interviews, everyone was planning on attending graduate school. Their exact plans, however, were still unclear. The range of graduate degrees under consideration varied, from an MBA for Itzeth to law school for Andres to a PhD in engineering for Luis and everything in between. Julia had considered working for a time before attending graduate school for a Master's degree in engineering. Her interactions with the graduate students in the lab where she does research changed her mind. After hearing their tales of the struggles they had faced in returning to school after working in industry, she has changed her mind, stating:

Most of the ones I've talked to waited, and they're like "it's so hard – don't do it"I guess when they graduated, they found jobs, and then they decided they wanted a masters. And then they had to give up all the money that they had, and they couldn't live in like a normal house, they had to live in a little apartment. They also said that it's harder for them because like up until now, all we've been doing is just studying and going to school, and that's all we've known. And so taking a break from that, it's harder to come back and get into like school mentality. (INT-Julia.7/21/10.pp7-8)

Crystal is looking to use graduate school as a way to expand her engineering horizons. She explains, "...Because I was thinking that I might at

least wanna get a masters in some other engineering field that is not mechanical, so that I can get like a more...I guess like a broader range of knowledge in whatever it is that I wanna do" (INT-Crystal.4/1/11.p9). Joey, as well, is hoping that attending graduate school will help him narrow his future options. Although he knows he wants to continue doing research, he cannot decide if he wants to go into academia or industry or work for the government. He shares, "...I'm just going to see if I can just compare between working in a government lab or a private industry lab or academia. So, those are the three options for now" (INT-Joey.7/29/10.p18).

Luis feels so strongly about graduate school that he is willing to risk the displeasure of his parents to attend. With his younger brother set to graduate from high school and join him at A&M for his final year, his parents were hoping that he would be able to help shoulder some of the financial costs of his brother's college. He is feeling pressure to go straight into industry, a move he is not willing to make. Luis explains: "I told them it would take about six years for that and they looked at me and thought, 'Six years. We're going to need your help a little sooner than that.' But I've been telling them it's something that I want to do and that I'm going to do it. You know, that I'm going to get a PhD" (INT-Luis.7/26/10.p15). This is not to say that he is unwilling to help out his family, because he is. He is confident in his brother's ability to receive substantial financial aid, so he doesn't feel that a sacrifice of this level is required

of him and attending graduate school immediately after he completes his degree at A&M is his goal.

While the decision of which exact discipline to study is still unresolved for the majority of the participants, the question of whether or not to attend graduate school seems to have been settled. Also open for all but Itzeth, who is intent on UTSA (University of Texas at San Antonio), is where they would like to attend. They are prepared to go wherever they must in order to get what they feel is the best graduate education. Luis, for example, is seriously looking at Carnegie Mellon, Stanford, MIT and UC Berkeley, with A&M, UT, Virginia Tech and Georgia Tech as his “safety” schools. For others, Texas A&M is a possibility, although perhaps not a strong one. Madeline states, “I don’t know if I wanna stay here or not – I haven’t planned that out yet” (INT-Madeline.7/23/10.p25). Crystal shares, “I have considered staying here, but I would like to attend some other university, just somewhere different, somewhere far away....If I can get a good deal outside of Texas, yeah, I would go for it” (INT-Crystal.4/1/11.p9).

Even though they have not decided where to attend, graduate school appears to be a certainty for these students. Career opportunities and job options beyond that point, however, are still unresolved. Some of them, such as Julia and Itzeth, appear to have hazy concepts of what they are hoping for in terms of future employment opportunities, but all of them seem to be counting on graduate school to provide them with guidance about their professional futures.

While they may not have been consciously aware of the extent of personal growth that has taken place during their undergraduate endeavors before being asked about it during the interviews, all participants knew that they had matured during this time. This maturation was primarily conveyed with relation to a “personal” self, and one participant expressed it more in terms of a “professional” self.

Joey largely attributed his maturation to his experience as a member of MAES. He addressed his growth as an individual as an element of his professional self. His tenure as president of this student organization required that he interact with many people, professors, as well as some who were university administrators and representatives from industry. He says, “...I’ve become more mature, more professional, and I’ve just picked up on a lot skills that I really didn’t have before” (INT-Joey.7/29/10.p40).

Several participants referenced independence as a principal area of growth. This idea of independence covered many areas of their lives. Coming into this experience with varying degrees of independence, they realized that the degree of how independent they were, or were not, had changed during this time. Julia spoke about how much more outgoing she had become as an individual, no longer waiting for others to make the first move in initiating conversations and interactions. Itzeth relayed how this had influenced her interaction with other individuals, feeling that she was more accepting of individuals who were from other cultures because of her solidified

independence. Crystal relates, "...my mom always used to tell me that I was independent....I think I've embraced that more here" (INT-Crystal.4/1/11.p34).

For Madeline, the growth in this area was her realization that there are times when it is okay not to be independent. Growing up with a brother who had been diagnosed as autistic, she prided herself on being independent and not needing or asking others for help. She states:

...I thought I was independent when I got here. And I learned to be dependent on other people and have to rely on people....And coming to college I realized that it's okay to ask for help. And it took a lot of patience and stuff for that to happen. And I'm just a lot more stress-free and less anxious than I used to be, because as long as you try your best, you can't really do much else in that....And even if I get not such a good grade, I feel like I did everything in my power to do well, and I'm a lot nicer. (INT-Madeline.7/23/10.p20)

Andres interpreted the concept of independence on his journey of maturation in terms of defining what is important. He spoke of the importance of goals and how having them gave him motivation to achieve them. He also talked about examining the morals and beliefs his family espoused and how he had now internalized them. He relayed, "...You can't say like my morals changed because it's like the same. I know what's right and what's wrong, so that's always been there....mostly independent now" (INT-Andres.4/1/11.p31).

For Luis, the foremost area in which maturation took place was in his self-esteem. On top of the general angst of adolescence, having experienced frequent moves due to his father's military career, finding a place to fit in had been a struggle for him during his pre-college years. Coming to college allowed him to gain a sense of who he is, sharing, "I've gotten more of a sense of who I am while in college....Here, I've been able to grow myself....I feel like I'm more of a whole person....My, just self-esteem has really increased...." (INT-Luis.7/26/10.p37-38). He now has confidence in himself and his future.

All the participants agreed that they had changed and grown as individuals during their undergraduate years. Looking back on their experiences, some were amazed at how much they had matured, but all seemed to feel a sense of reward and accomplishment at their growth.

Sub-theme: People – I realized I wasn't alone. The third sub-theme that emerged was in how participants had assessed and changed their views about people in their everyday lives, particularly in terms of friends. Some of the participants had a large number of friends, while others indicated they had a small circle of close friends, but all of them spoke about how they now viewed the people in their lives.

Some participants were uneasy about making friends in college. Andres, Crystal, and Itzeth, in particular, were apprehensive when they first arrived at A&M. Andres shared, "...I came here and didn't really know people, and like I didn't know anybody, and I don't like making friends that much" (INT-

Andres.4/1/11.p11) and admits that his closest friends are still in his hometown. He was able to connect with a classmate who also came to A&M and with her was able to meet people and go places even though his social life was not as active as the one he had enjoyed in high school because “engineering and everything kind killed it” (INT-Andres.4/1/11.p11).

Crystal disclosed that she, too, was apprehensive about making friends at A&M. Coming from a small town and an area where as a Hispanic she was in the majority, she was concerned that she wouldn’t fit in and would feel out of place. She quickly discovered that for her this was not the case and that because she is an outgoing person, she was able to adjust and make friends quickly. Itzeth was also anxious about making friends. Having moved to the US during her high school career, she felt she was still adjusting to the language and cultural differences between the two cultures. She relays:

...I would hear someone speaking Spanish, and I would turn around to see if I knew them....And as I started getting to know more people, I realized I wasn’t alone....I was just scared that I wasn’t gonna find people that I could communicate with. (INT-Itzeth.4/3/11.pp11-12)

Like Andres, she connected with someone she had known in high school, and this older student helped her make new friends and figure out the A&M environment.

The diversity of the A&M population as it related to friends was a topic of interest for the participants. For several of the participants, A&M is much more

diverse than their previous environments. As Crystal phrased it, "...like the Valley, like mostly everybody is Hispanic over there, and over here, not that much" (INT-Crystal.4/1/11.p11), and that was a tremendous change for her. Even though for most of the participants, a large number of their friends are Hispanic, they also have friends who are not. They have taken advantage of this new experience to expand their horizons and learn about people and other cultures. Itzeth sums it, stating, "...I love learning about cultures. And just talking to these people like when we met and we started working together....I like...having friends from different areas, I guess, that I can share different things with them" (INT-Itzeth.4/3/11.p22).

Other participants, such as Julia, Madeline and Luis, miss the more diverse environment they are accustomed to. Due to his upbringing in a military family, Luis considers himself to be a quasi-international student and has many friends among the international student population at A&M. Julia felt that she missed the depth that having friends from other cultures added to her life. She related:

...I feel like I haven't been able to connect with other people or ethnicities...in high school, a lot of my friends were like Asian American, Indian, and so I felt that I was learning a lot, not only about all the cultures, but maybe other beliefs. I'm like well, you know, that's a different way of seeing things that I never thought of before. And so I felt like I was losing that a lot more than anything....My main concern was just

hanging out with people who were just different cultures...which is what I've been like growing up with all my life. (INT-Julia.7/21/10.pp25-26)

Whether the participants came from backgrounds with considerable diversity or not, all of them realized how having friends from dissimilar backgrounds could enrich their undergraduate experiences. After becoming aware of this, many of the participants actively sought it out, some of them changing their previous conceptions about which individuals could be a friend.

Theme: Individuality – I've Gotten More of a Sense of Who I Am

Not surprisingly, these participants had a strong sense of self. They are confident in who they are as individuals and have an understanding of how they achieved this self-confidence. Willing to chart their own course, if need be, they do what they think must be done in order to be successful.

Several of the participants commented about how they adjusted their course load in order to be able to give their more difficult, usually upper-level, courses the time and effort necessary to earn the grades they wanted. They were not only concerned about the course grade, in and of itself; they also wanted to ensure that they had a firm grasp on the course material. For Julia, the number of hours she enrolled in each semester varied ranging from 13 to 17, depending on the courses. Madeline shares, "Last semester I did 15, and that was the most I've ever done. I usually keep it at 12 because I know my limit" (INT-Madeline.7/23/10.p13).

In the course of the interview process, two sub-themes emerged that helped to illustrate this concept of Individuality: (a) *Campus engagement: I've been involved in a lot of stuff* and (b) *Encouragement: Nobody limits you but yourself*. These sub-themes convey how participants express their individuality as undergraduate college students.

Sub-theme: Campus engagement – I've been involved in a lot of stuff. All of the participants were actively involved in campus life. There were certain experiences all had in common: all seven had lived on campus during their first year of college and all were involved in some type of student organizations. Most participants had worked during their college careers, as well, and the majority of them had been involved in some sort of research.

Living on campus during their first year at A&M was an experience shared by all participants. Whether it was an experience they enjoyed or bemoaned, all agreed that it helped them adjust to college life and make new friends. It helped them strengthen their perception of who they are as college students.

Beyond helping them make new friends, a major advantage of living on campus for several students was the ease of being able to get to class quickly. "It was really great," shared Joey, "that you could get up and get to class in 5 minutes" (INT-Joey.7/29/10.p22), especially since commuting to classes on the A&M campus from off campus apartments can be a logistical challenge. The lack of privacy in dorm life, particularly shared bathrooms, and not having access to a kitchen were two of the most common complaints.

This is not to say that there were no adjustment issues to living on campus. Some participants, such as Madeline, experienced roommate conflicts and moved to another dorm only one month into her first semester. Having heard horror stories about incompatible roommates, Itzeth chose to avoid potential roommate issues altogether by selecting a female-only dorm with single rooms for her freshman year. For the majority of the participants, this was the first time they had ever been responsible for themselves and the day-to-day tasks such responsibility could bring. Luis reveals that he caught a microwave on fire when trying to cooking rice. He states, “It was hard. The dorm room was cramped just like my room back at home, but I mean, I was living there with a roommate, a guy I had never met surrounded by people I had never met” (INT-Luis.7/26/10.p25).

Four participants had lived in Mosher Hall during their freshman year. For three of the four, it was a requirement of their Regents’ Scholar scholarship which was a substantial portion of their financial aid award. Residing in Mosher Hall meant that these students took part in the Engineering Living Learning Community (ELLC) that was sponsored by the College of Engineering and the Department of Residence Life at A&M. A venture that primarily targets first-year, first-generation students, residents of Mosher Hall are recipients of focused efforts aimed at assisting them in their transition to college and its academic challenges. These efforts include clustered classes, designated study lounges, monthly success seminars, dedicated tutors and mentors, and a dorm where all

the residents are engineering majors (ELLC, 2010). While there was a lack of consensus among these four about the effectiveness of these efforts, all agreed that being a part of the ELLC was instrumental in their successful transition to college life and in their becoming involved with their peers on campus. Joey relays:

....being around a lot of other students in engineering was actually pretty nice. I'm not the studying type, but I still like being in that environment....There was a lot of study groups going on....every time you walk by you always see students studying. And it's not what you'd expect from a college....But it really worked....It really does seem to work....I would meet up with them, not for studying. I'd meet up with them, go down and play pool, go to the movies. I would definitely socialize with the other students in engineering....(INT-Joey.7/29/10.pp23-23)

The effectiveness of learning communities in assisting students with transitioning to college life was also evident with Itzeth. Not a member of ELLC because she was not initially an engineering major, she was a member of the learning community sponsored by the College of Agriculture and Life Sciences. She attributes this organization with helping her make friends and adjust to her new life at Texas A&M through clustered classes, meetings and the spring break trip to Mexico City.

Participants were also actively involved in a variety of student organizations. These organizations covered a wide range of interests. All of the

participants were members of at least one engineering-related organization. These engineering-related organizations were primarily Hispanic-oriented groups such as SHPE (Society of Hispanic Professional Engineers) or MAES (Society of Mexican American Engineers and Scientists), although several participants were also members of SWE (Society of Women Engineers) and/or an engineering honor society such as Pi Tau Sigma and Tau Beta Pi.

The level of involvement and number of organizations varied from participant to participant. Some participants, such as Joey, picked one organization (MAES) and were heavily involved in that organization. Others, such as Andres and Itzeth, were members of several organizations, altering their level of involvement from semester to semester. He shares, “....every semester I’m trying to do something new....I’m just trying to get something that benefits me the most” (INT-Joey.7/29/10.p19). Itzeth was involved with CAMAC (MSC Committee for the Awareness of Mexican American Culture), a very active organization that sponsors an annual conference that focuses on societal issues such as higher education and politics that Hispanic students are facing.

Crystal, by far, had the heaviest involvement. She states, “I’ve been involved in a lot of stuff” (INT-Crystal.4/1/11.p16). Her long list of organizations ranged from SHPE and SWE to the American Red Cross and the Society of Collegiate Scholars. Through her association with all these groups, she had participated in blood drives, mentoring, a wide variety of intramural sports and a spiritually-oriented Hispanic Bible study, just to name a few.

Beyond their involvement in various student organizations, the majority of these students also worked. The jobs they held may or may not have been related to their major in some way. Julia worked at Poor Yorick's, an on-campus coffee shop located at the main library on campus, during her freshman year. Itzeth held a student worker position at the Computer Science Help Desk, which has provided the opportunity for her to get to know her professors better. Luis has been a math tutor and a counselor for a summer math camp for area middle schoolers, where he enjoyed sharing his fascination and love of math with others.

A particular form of work shared by most participants was research. This research may have been tied to their financial aid award, may have been a requirement of their degree plan, may have been related to a special program, or may have been something a student found interesting and wanted to do. Whatever the reason, all who were involved in research were very enthusiastic about it. This research opportunity and experience deepened the awareness of what they could actually "do" with their degrees for several, an enlightening and motivating experience for them. This caused these students to become more engaged in their undergraduate educational experience, fostered deeper relationships with their professors and other students – graduate and undergraduate, and provided opportunities for personal and professional growth they would not have had otherwise. Itzeth shares:

...I wanted to get the opportunity to do some research because I wanted to know what it was all about. Professors always remark in class that it's really important for us to get some experience for if we wanna go to grad school. And I had the opportunity to get course credit for it as well, which was really good. It's something new that I'm learning about. I never thought I would work in something to do with recognition. I mean computer science, there's so much stuff....There's so many things that you can do, and there are many labs at the computer science department. They're just working on many different things. But I like working there – Dr. Hammond is a really nice person to work with. She thinks that we can do whatever we wanna do, we can do it, so she really encourages us to do things, go to a conference and participate and things, present our research to institutions and stuff like that. (INT-Itzeth.4/3/11.pp18-19)

Through their campus involvement, a combination of living on campus their first year as well as their involvement in various student organizations and working/research, participants gained a greater personal understanding of who they were as students at Texas A&M.

Sub-theme: Encouragement – Nobody limits you but yourself. One way that participants exhibited their individuality was through the words of advice and encouragement they offered to others coming along behind them. Their words divulged what was important to them as individuals.

In addition to self-identifying as Hispanic, the majority of participants were first-generation college students. As such, they offered guidance that was tailored for the needs of their specific peers.

The most common encouragement given was the importance of persistence. The value of persisting was referenced with respect to both the academic and the non-academic aspects of their lives. All agreed on the importance of getting a college education. Andres shared, "...the thing is getting to college. That has to be to get into college, it has to be it, you know, getting into college, there's no other" (INT-Andres.4/1/11.p33). There were admonitions about studying hard, applying oneself as a student, joining organizations, the necessity of self-discipline and the like.

There was also a plea for balance in their high school lives. Some participants, such as Itzeth, emphasized the importance of high school and advised students to remember that what they did in high school would "affect their college careers" (INT-Itzeth.4/3/11.p37). Other participants, such as Julia, urged students to enjoy where they were at the moment. She relates,

...Loosen up....I feel like I missed out on a lot of things in high school because I was so focused on like I have to do really well on this test...because otherwise my life is gonna be meaningless....And so I guess just finding a happy medium in between like going out with friends and having a social life – it's like memories to look back on....the effort

that I put in wasn't as important as I thought it was then, and I know how important it is now. (INT-Julia.7/21/10.pp37-38)

Participants emphasized the necessity of persevering and attributed their perseverance to a variety of influences in their lives. Some recognized the importance of their families and former teachers in their determination to succeed and make it to college. Some related it to their faith and the role it played in their lives. Other participants gave credit to themselves and the hard work and discipline involved in their success. There were others who described a combination of these influences as important sources of encouragement in their lives.

Above all, the message was to carry on. Future students were encouraged to challenge themselves and expand their horizons – to “never give up,” as Crystal phrased it (INT-Crystal.4/1/11.p34). Luis summed it up,

Be hopeful for the future even if “crap” is happening to you right now that you feel is out of your control, you can always pull through. Even if the situation gets worse and you end up getting hurt, take it as an experience and try to move on because if you limit yourself early on, you're hurting yourself in the long term. If you keep pushing forward, you benefit in the long-term from learning from that life experience....I made my own decisions and so I feel anybody else who's in a similar situation should, even if they don't have much self-esteem, try to get the courage to push themselves because in the end, they're the only thing that's limiting

themselves. Nobody else limits you but yourself.... Pursue your dreams.
 Don't let anybody force you into a major you don't like. That's about it.
 (INT-Luis.7/26/10.pp44-45)

Theme: Essence – That's Just How We Are

Beyond a strong sense of self, all participants had a keen awareness of the forces that helped fashion them into the persons they have become. They spoke passionately about the people who had had such powerful effects on them. Without a doubt, they realize that who they are today is a direct outcome of the influential individuals and experiences of their pasts. Through the interview process two main subthemes emerged that describe the factors that they considered foundational in contributing to this sense of essence: (a) *Family: I appreciate my family a lot more than I used to* and (b) *Culture: You have more in common.*

Sub-theme: Family – I appreciate my family a lot more than I used to. “Family” is a mainstay for these students. As participants spoke about their families during the interview process, a sense was gained of just how central family was and is to the core of who these students are and how they got to be that way. Participants talked about their families with love and respect. They love their families and appreciate all that their families have done to help them achieve their educational goals.

Actual family history and circumstances were quite diverse among participants. Educational background ran the gamut from little to no formal

education for Joey's father and Andres' mother, to advanced degrees for Julia's mother and Madeline's father, and everything in between. No participant was an only child, but several had only one sibling while others had multiple siblings, with Joey having the most, being one out of six children in his family. The number and relationship of people living in their households also varied. Itzeth and Crystal had grown up in households where several generations shared a residence, while others came from situations where their immediate family members were the only ones living together at an address or in a city. Geographic proximity of extended family members also fluctuated among participants, with some having grandparents, aunts, uncles and cousins living either nearby or under the same roof, while others had relatives living in other cities, states and/or countries. Some participants came from families where there were divorced or absent parents.

Participants conveyed their appreciation concerning the support their families had demonstrated for their journey into higher education. The expression of this support may have been demonstrated through words, deeds or finances. They feel that this support has been vital to their success as undergraduate students. Several participants expressed the belief that they would not have made it without the support of their families. Joey spoke of how his mother was the parent who "made sure we got our homework done...[and] made sure we stayed on track with the school" (INT-Joey.7/29/10). Several participants discussed how various family members would comment upon and

encourage them to get good grades in both high school and college so that the goal of college graduation could be reached. For Crystal, this verbal encouragement began with her grandfather and was continued by other family members after his death. She shared, "...my grandpa was...the one that always got after me for my grades and stuff....And after he passed away, I still continued to see that in my family" (INT-Crystal-4/1/11.p26).

Parents who had attended college themselves, tended to be more verbal in their support. A college professor, Madeline's father would talk to her about what she needed to do to be a successful college student, providing study tips and suggestions on how to talk with her professors. Julia's and Itzeth's fathers stressed the need for independence, especially in their decision making, as a necessary attribute of a successful college student.

For some participants, their families expressed support through deeds. Luis related instances of where his family "will just pick up their things, leave the house, come over here, visit me, cheer me up," (INT-Luis.7/26/10.p18) as just one example of how his family demonstrated their support for him. Andres and his sister, a college graduate, are acutely aware that their parents have made many sacrifices so that they and their siblings might have the opportunities that having a higher education brings. Joey overheard his mother expressing her desires for her children in a conversation with an aunt. During the conversation, his mother stated:

...I'm so glad that...my kids are doing good in school. Because I don't have anything to give them other than their education, that's all I have to give them...I just have to make sure they have a good value of education, that they understand the importance of it; they'll do everything I can do.

That's all I can do for them in life...." (INT-Joey.7/29/10.p32)

This conversation had a tremendous impact on him, causing him to become serious about his both his current and future educational endeavors.

Participants became aware, during their time at A&M, just how much their parents had sacrificed for them to be able to come to college.

Even though the majority of the participants were first-generation college students from low SES backgrounds, their families wanted to make sure they had everything they needed in order to be successful. Several participants commented about the financial support their families had provided or offered to provide for them. Andres commented that while his family doesn't really know that much about the college going process and experience, they want to make sure he has what he needs. Julia, one of the two participants who was not a first-generation student, came to appreciate the advantages her family background had afforded her. She shares:

...I have a lot more respect I guess for my parents....looking back, I've seen like the sacrifice that they've done, like just raising me and my brother....a lot of kids here...work 30 hours a week to pay for half of their tuition. And my parents, they've never asked me to get a job....I've

realized I'm really lucky to have parents who are not only able to support me, but also willing to support me throughout college. (INT-Julia.7/21/10.p23)

From the interviews, it was clear that participants love their families and miss being with them. Geographically, no one was from the Bryan-College Station area, with Luis being from the closest point at approximately 100 miles away. Several participants were from cities in the Rio Grande Valley, a distance of 350+ miles. Regardless of the distance, even if they would not admit to being "homesick," all participants mentioned missing their families. Although participants dealt with this in a variety of ways, the most common method of coping was continual communication. All of them had cell phones and they used this technology to stay in constant contact with their family members. The majority of participants admitted to talking with various family members, usually their mothers, multiple times a day. Communication with their fathers and/or siblings was not as frequent, averaging every two days or so. Luis offers an explanation for this behavior, "...I call my family all the time and get them to help make me feel better just by talking to them" (INT-Luis.7/26/10.p26).

Despite the constant phone contact, and even though participants missed their families, there were not a lot of instances of going home to visit. A few go home once a month, but the majority of participants either go home once during the semester, at Thanksgiving or Spring Break, or only at semester break. This is not to say that students didn't *want* to go home, they just didn't. For some of

the participants, distance was a mitigating factor, especially for those from the Valley. Andres shares, “I could go, it’s just a very long drive, you know? And I don’t have time, driving on the weekends....you’re only gonna spend one day over there” (INT-Andres.4/1/11.p2). Luis chooses not to go because of the emotional toll he feels it would take, relating:

...to a point I was homesick because I love my family. But, at the same time, I knew I was here for a reason and going home right now, or at that time, I knew it would be pointless because I knew people who were constantly going home to their families....Every other weekend....I could not bear to do that. I mean, going home and then going away from them, going home and then going away from there; it just felt pointless. That just puts more strain on you than anything else. (INT-Luis.4/26/10.p 26)

Still other participants, such as Julia, have become very involved in campus activities and in studying, so choose not to go home for those reasons, even though they miss their families.

When participants did go home, whether during the semester or at break, they were glad to be there. This is not to say that there was no conflict. Luis spoke about heated family disagreements that did not last long, with reconciliation quickly following as a common occurrence in his family. He shares, “...we can argue with each other to the point where it’s just annoyance....like five minutes later, we’re back to cheerily talking to each other, really happy. That’s just how we are” (INT-Luis.7/26/10.p16).

All participants spoke about the joy they found in spending time with their families. Celebrations with extended family were not uncommon. Several participants mentioned how they now enjoyed spending time and hanging out with the siblings they considered immature before college. Just being at home is enough. Madeline sums it up, "...I appreciate my family a lot more than I used to....Just being there, being able to lay on my couch and have my mom there....I run errands...we do a lot of family stuff, but it's just having them there" (INT-Madeline.7/23/10.p21). Visits home revitalize them.

Sub-theme: Culture – You have more in common. Participants have come to value and appreciate their Hispanic heritage and culture more since coming to Texas A&M. Even though several participants came from geographic areas where the Hispanic culture was the dominant culture, they felt that their time at A&M had clarified and intensified their understanding of what it means to be Hispanic. This increased regard for their culture was demonstrated through the comments participants made about the Spanish language and food.

The Spanish language was very important to these students. All of them consider themselves to be bilingual, although the fluency of their Spanish varies. Understanding spoken Spanish is not an issue for these students, and most of them can read written Spanish without a problem. The majority of them admit that writing in Spanish, especially in a grammatically correct manner, is a challenge and an area in which they are deficient. Several comments were made by participants about how they felt that their fluency in Spanish had

deteriorated since coming to A&M and how unhappy they are about that. Itzeth, in particular, has made a conscious decision to make sure that both her Spanish and English are grammatically correct. Julia is working towards a Spanish minor, sharing, "...I don't speak in Spanish as much, and so I feel like my vocabulary is dying slowly....I'm a Spanish minor, and so I guess that has kind of helped because I'm able to take classes and just refresh my memory" (INT-Julia.7/21/10.p27), and discloses that she practices her Spanish as much as possible with her father.

A shared cultural experience among participants was the language primarily spoken in their homes, especially during their early years. Spanish was the first language for all participants. Some participants had parents who were bilingual, such as Crystal, but all reported that Spanish was the principal language spoken at home during their early childhood. A common experience participants shared was that communicating in English became more prevalent and widespread among their siblings and friends as they progressed further into their educational experiences, even though their parents continued to communicate with them in Spanish. For many participants, it was not unusual for one parent to be comfortable conversing with them in English while the other parent preferred Spanish. Julia captured this experience in her home, sharing, "...my mom speaks mostly English unless we're in trouble....my dad...moved here when he was like 25 or so....so he speaks Spanish to us. He understands English" (INT-Julia.7/21/10.p27).

The preferred language of communication with friends at A&M varies among participants. Some, such as Andres and Julia, mainly converse with their friends at A&M, Hispanic or not, in English. Madeline chooses to communicate in English because she feels that it would be rude to speak Spanish in the presence of those who do not. Itzeth misses communicating in Spanish and tries to speak it as much as possible. Whatever their choice, all agreed that language was an important element of their Hispanic culture and identity. Itzeth sums it up, stating, “....I miss just the environment that is created, and I think that’s mainly influenced by the language” (INT-Itzeth.4/3/11.p27).

Food was another cultural element mentioned by participants. Being able to cook for themselves and cook the kind of food they wanted was one reason the majority of them gave for wanting to move out of the dorms and off campus. For several of the participants, food and camaraderie went together. Joey related how MAES used potlucks and cookouts as a method of helping members connect with each other and their cultural background.

There was some difference of opinion among participants about whether or not “good” food, especially with regards to authentic Mexican food, could be found in the Bryan/College Station area. Most participants felt that the Hispanic eating establishments, particularly in downtown Bryan, did an acceptable job of providing genuine Mexican food. A variety of restaurants were cataloged as acceptable, some with more enthusiasm than others, all of which were located in

Bryan. For some participants, such as Itzeth, however, nothing would compare to the food at home – particularly that made by family members.

Madeline's synopsis captured the overall sentiment about participants' need to recharge their cultural batteries and the important part food plays in this enterprise:

...hanging out with my friends and going to Downtown Bryan and getting Mexican food is also helpful...[favorite restaurant?] Casa Rodriguez. It's like the best Mexican food ever....My mom cooks a lot. And a lot of my friends freshman year, their idea of Mexican food was like Taco Bell or Taco Cabana, and I was like no, this is not Mexican food – it's kind of insulting that anyone would think that Taco Bell . . .their crunchy tacos are good, but it's not Mexican food. (INT-Madeline.7/23/10.pp28-29)

Beyond the language and food issues mentioned above, participants were hard-pressed to identify individual elements of their culture. For them, culture was more of what they were accustomed to, rather than a list of specific components that comprised that culture. Julia summarized it, saying, "I think that's more of where I grew up, rather than my culture" (INT-Julia.7/21/10). This is not to say that they weren't aware of Hispanic culture, but that describing its elements was difficult for these students. As Madeline stated, "It's just the culture. Being close to your family. Some of the values that you might have. I don't know – the culture" (INT-Madeline.7/23/10.p26).

For many of these undergraduate students, their time at A&M was the first time they had consciously examined their culture and what it means to them as individuals. This process also meant that participants became more aware of how individuals from non-Hispanic cultures viewed their culture. Coming to Texas A&M, with its predominant “whiteness” was the first time some of these participants had become consciously aware of how their Hispanic culture differed from other cultures. Some of the participants were wary about this before they got here. Crystal shares, “...in the back of my mind I, like when I first came over here, I did worry that maybe other people may like exclude me in some ways because of that, because of my race or something” (INT-Crystal.4/1/11.p30). Others, such as Madeline, Julia and Luis, were accustomed to having friends from different racial and ethnic backgrounds, and were not particularly concerned about it before they arrived at A&M.

The topics of stereotyping and discrimination were raised during the interview process, and, while participants did not deny that these issues exist at A&M, no one acknowledged directly experiencing discrimination from classmates or instructors. Several of them relayed instances of overhearing comments made by other students, but no one had had these comments directed at them. Still, overhearing these comments did make them wonder how their classmates viewed them. Itzeth related an instance of having a Hispanic instructor with a heavy accent in a math class, sharing, “I didn’t have trouble understanding him – I don’t know if it’s because we probably have the same

accent....But many students would criticize him. And it would make me feel like if they were criticizing me and my accent, because I identified with him” (INT-Itzeth.4/3/11.p27).

Several instances of experiencing stereotyping were related by participants. Coming to A&M was not, of course, the first occasion where participants had faced instances of being stereotyped. Even though the majority of them had grown up in what they had described as primarily Hispanic surroundings, they were still aware of the various Hispanic stereotypes. Luis, in particular, detailed some of these stereotypes during his interview, elaborating, “...in high school, if you were Hispanic, you were an idiot or you shouldn’t be doing hard work or you’re stealing something” (INT-Luis.7/26/10.p39). There was a sense of frustration on the part of participants that they were having to deal with it at all. Participants relayed two primary ways in which they have chosen to deal with the experience of being stereotyped – bold disproof and humor.

Although it may appear that these students are ignoring their experience of being stereotyped, that is not the case. Several of them commented on how they use the emotions the experience generates as motivation to excel. Luis and Julia, in particular, took great pride in listing off their accomplishments at A&M: demanding majors, stellar GPR’s, research opportunities and scholarships, to name a few. Luis proclaims, “All the Hispanics I’ve known here at A&M, we just don’t really care because....if you want to insult us, let’s look at

what we've achieved. Let our achievements, basically, do the explaining for us. That's the attitude here so we don't really care" (INT-Luis.7/26/10.p39). There was a well-deserved sense of success as these students recounted their achievements in the face of what they perceived to be negative stereotyping.

Participants also related how they used humor as a coping mechanism in the face of stereotyping. Multiple participants communicated occurrences where they and their peers, some of whom were Hispanic and some of whom were not, would make jokes about various racial and ethnic stereotypes represented by those present. These communiqués were offered in an off-hand manner as if to relay that the stereotypes were no big deal. Crystal related, "...they make jokes about like, you know, Mexicans, and not in an insulting way. Because that's the way it's supposed to be, like nobody should take offense" (INT-Crystal.4/1/11.p30).

Based on their comments, participants did not feel that those around them stereotyped out of malicious intent. Rather, they chose to attribute it to the inexperience of others with Hispanic culture. Several participants remarked that many of their classmates at A&M came from environments where there was not a lot of opportunity for in-depth, personal exposure to Hispanics. Madeline summed it up, "...a lot of people here are from really small towns, so they haven't experienced a lot of different people, a lot of variety of people" (INT-Madeline.7/23/10.p26).

There was, however, a specific example of stereotyping that was particularly offensive to the participants involved: Julia and Luis. Unlike the other participants, neither of these two have their Hispanic roots in Mexico. Julia lists her Hispanic heritage from Puerto Rico and Luis attributes his to a combination of the Dominican Republic and Puerto Rico. Both have been repeatedly stereotyped as Mexican, an occurrence they find deplorable. One particular instance occurred after Julia had played soccer with a group of friends. She had played well and they attributed it to her Mexican heritage. She relayed:

...I was like, I'm not Mexican – Puerto Ricans usually play baseball actually. And they're like, "Oh well, it's the same, right?" And I was like no....That's one thing that like really gets under my skin....not only just assuming that I'm Mexican, but assuming that because I'm Puerto Rican, like I'm no different, like culturally or how we speak or anything, than someone who's from Mexico. And I've had that a lot since I've come to college. (INT-Julia.7/21/10.p32)

Luis shared similar experiences of his dismay at being identified as Mexican, when he is not. He states, "I'm Puerto Rican. Get that straight. I am not Mexican. I have nothing against Mexico, but I'm Puerto Rican. I'm Hispanic, but get it straight" (INT-Luis.7/26/10.p38). Again, neither of these students assumes that these mis-identifications are made on purpose or with the intent of insulting them. They believe that their peers are simply unacquainted with any type of Hispanic heritage other than Mexican. As Julia puts it, "...I just do my best to

educate...Puerto Ricans are different because we speak Spanish differently. We're not even a country – we have different traditions” (INT-Julia.7/21/10.p34).

For all the ignorance of their peers and the stereotyping participants have experienced since coming to A&M, they feel that their appreciation for their Hispanic culture has grown during their time here. Itzeth has changed her primary self-identification from “Mexican” to “Hispanic” because, “I’m just more proud of being both Hispanic and Mexican, and my culture. I’ve learned to love my culture even more and to value it” (INT-Itzeth.4/3/11.p34). This greater awareness of their culture has impacted other areas of their lives, as well. While all participants report having a diverse group of friends in terms of race and ethnicities, all have a primary core group of friends who are Hispanic. All of them are involved in at least one organization that has a Hispanic orientation, whether it is a social or major-related organization. This impact does not surprise them. As Andres summarizes, “...you have more in common; you know ‘this,’ you know how to take Spanish. It happens” (INT-Andres.4/1/11.p29).

Theme: Successful Study Strategies – I Realized If I Wanted to Continue Not Having to Relearn and Relearn, I Should Just Learn

The GPR’s of these students clearly establish that they are academically successful. During the interview process it became evident that participants are aware of the hard work they have had to put forth to reach this level. They know that it did not “just happen” and that it has taken a concentrated effort to become the high-achieving students they are. Through this process, three sub-themes

emerged that illustrate in-depth the components that combined to facilitate their academic success: *(a) Transitions: It was a hard semester my first semester;* *(b) Approach: You actually have to know what's going on;* and *(c) Assistance: Opportunities they give for extra learning.*

Sub-theme: Transitions – It was a hard semester my first semester.

Participants came from a variety of high school backgrounds. Some of them were from large cities and schools such as those in San Antonio, Texas and the Dallas-Fort Worth, Texas metroplex, while others were from smaller towns and schools such as those in Weslaco, Texas and Killeen, Texas. All had been involved in some sort of extracurricular activities during high school, whether they were sports, church, club or academically related. Some of them had worked a part-time job during high school as well.

One commonality amongst them was the advanced courses they had taken. All participants had taken Pre-AP and AP courses at some time during their pre-college years. Some had taken the AP exams and had scored high enough to receive college credit for these courses. Others had either elected not to test or had not scored high enough for course credit. Some participants had taken dual-credit courses, as well, either through their local community colleges or at their high schools. Prior to their actual attendance at A&M, all participants felt that taking these courses, regardless of which advanced courses and the venue, had provided them with some familiarity as to the authentic level

of difficulty of college courses. Their actual experiences at A&M, however, demonstrated that this was not the case.

Participants did not begin their scholarly endeavors at A&M thinking that it would be the same academic level as high school. They knew it would be harder. Beyond their experiences in the advanced courses, some of them had been in programs that tried to prepare them for the changes that were coming. Crystal had participated in Upward Bound, Math and Sciences at the University of Texas, Pan American campus. Itzeth had attended presentations in high school where former students returned and talked about college life. Julia related classroom experiences where high school teachers had emphasized the differences between high school and college level work, sharing, “One of them was always like, ‘Okay, you’re gonna need this in college’” (INT-Julia.7/21/10.p19). All of them were aware that college was going to be advanced.

Participants had what seemed to them at the time to be realistic expectations of college level work. They knew their high schools might not have adequately prepared them. They knew it would be harder. They knew they would have to study. They knew they would have to study more. They knew that “good” grades would be more difficult to earn. And, yet, for all their knowing, they were still somewhat bewildered by the reality of college. Itzeth summarizes it:

It was a hard semester my first semester....I started getting my grades back, and they weren't exactly 98's or 100's (laughs). And that hit me really hard. I don't know if that happens to like a lot of students....And even though I tried really hard, it was still horrible. (INT-Itzeth.4/3/11.pp10-11)

Participants attribute this bewilderment to three main factors: high school academics, weed-out courses and the necessity of studying.

Participants felt that their various high schools had not adequately prepared them for the academic rigors of college. This lack of preparation is attributed to several factors. Students who came from smaller, poorer school districts felt that their schools simply did not have the resources to provide the more challenging courses. They arrived at A&M and discovered that some of their peers had been given academic opportunities they had not. For all of the advanced courses he had taken, Andres came to A&M having had no engineering courses, unlike many of his peers. Joey felt that his high school was classified as an academic joke and that students were split into two tracks: those who might have a chance and those who didn't. Those who might have a chance were given whatever meager resources the school had while those who might not, "just make sure they don't get into trouble" (INT-Joey.7/29/10.p19).

Participants were also of the opinion that the advanced courses, where available, were not always rigorous enough. Having now experienced actual college courses, several participants expressed puzzlement about why schools

and teachers had taught as they had. Julia, in particular, related instances where AP teachers taught to the AP test instead of teaching the necessary material. A holdover, in her opinion, from the philosophy of teaching to the TAKS test that was common in her earlier academic years, she felt this practice weakened the academic rigor of the course.

Five of the seven participants had to take engineering pre-requisite courses, commonly termed weed-out courses, during their first year here, particularly in math and physics. Although all seven had taken math at least through the pre-calculus level, four of the participants had to take MATH 150, an engineering-based pre-calculus course. Required because of their scores on an engineering math placement exam, participants who had to take MATH 150 felt that the course was purposely made more difficult than it had to be in order to eject unqualified students from engineering as a major. They viewed it as a remedial course that wasted valuable time and contributed to their feelings of not being prepared for college level work. This led to some of them wondering if they were qualified to be at A&M. Itzeth shared, "...it made me feel like I was unprepared, which I think had a big effect on my performance for that semester....I felt like I wasn't smart enough to be here" (INT-Itzeth.4/3/11.pp23-24).

Participants partially attributed their underpreparation to a lack of experience where studying was concerned. They knew that A&M was going to require more of them and they tried to step up and give it the effort they thought

it needed. Having heard the anecdotes from others about how hard college was going to be, the majority of them took it seriously. Crystal related, "...coming here I was scared of failing, so I busted my butt off (INT-Crystal.4/1/11.p11). A common lament was that they must now study – really study. This is not to say that they never studied in high school, but many of them simply gave it a cursory effort. Madeline shares, "...in high school, I just kinda dragged along. I was the top 5% of my class, but to say that I really tried....I wasn't very focused in high school (INT-Madeline.7/23/10.p2). Despite their effort, some of them received some of the lowest grades on exams and assignments that they had received in years. The majority of participants felt that high school studying had not given them adequate preparation for college-level studying.

Sub-theme: Approach – You actually have to know what's going on.

Participants found that in order to be academically successful at Texas A&M, they had to adjust their approach to studying. This meant that they not only had to adjust how much time they spent studying, but also how they studied for each of their classes.

All participants were enrolled on a full-time basis at Texas A&M. The number of hours in which they were enrolled varied from semester to semester, ranging from 12 to 17. Participants had discovered that as their classes became more advanced, they needed more time to put towards them if they wanted to maintain their high GPR's. Therefore, as they took more and more upper level engineering courses, they enrolled in fewer hours. As Julia summarizes, "I've

taken a couple semesters where it's been 17, and I think next semester I'm only taking 13. But it's kind of, I guess, quantity doesn't necessarily mean quality. This past semester I took like 14 and it was like 14 hours of death compared to past semesters where I've taken 17 and I still had a job" (INT-Julia.7/21/10.pp10-11). Through experience, they have learned that the level of difficulty of their courses corresponds to how much time and effort it takes to master the material.

All the participants studied, though they had a difficult time quantifying how much time they spend outside of class doing so. Part of the challenge for them comes in relation to what they consider "studying." For the majority of these students, the term "study" is what they do for a quiz or a test – reviewing notes and class materials, reading the textbook, etc. – and they don't think they do very much of that. However, if asked what they do outside of class to learn the material for class, particularly their math/science/engineering classes, they have a list of tasks they perform: homework; problems; projects; and programming, to name a few. They do not have an accurate assessment of how much time they spend learning material. They do whatever it takes, however long it takes, to learn it. Itzeth sums it up, "Outside of class? I mean it's just a lot – I don't think I can tell you a number of hours....I'm doing school stuff always. So I don't think I can tell you like an amount of hours" (INT-Itzeth.4/3/11.pp32-33).

What participants have determined is what works for them individually in learning material for class. Some of them, such as Andres have developed a solitary routine for studying for exams. This routine takes him to the library, away from the distractions he finds in his room – food, friends and TV. For him, getting out of his room and being alone is vital; he tried studying with others but finds that it just doesn't work for him. Crystal, on the other hand, often has two or three study groups going on at the same time, in addition to studying on her own. Madeline works and reworks homework problems and problem sets from old exams. No single approach works for all of them.

One thing participants have discovered is that whatever the method is, that method has to get at the “how” and “why” of the subject matter. In a problems-based course, like many of their engineering courses, no longer is it sufficient to memorize the steps of how to solve a problem. Now, they must know when to choose what steps to solve a given problem and why those are the appropriate steps to choose. Madeline relates, “...my first semester, I tried to memorize how to do math problems and that didn't really work because they're all different....You actually have to know what's going on” (INT-Madeline.7/23/10.p17).

Participants also recognize the value of having multiple study methods to use. They have realized that in order to learn material at the level they need to know it, they must work with it repeatedly and using different techniques. They have also comprehended that if a particular method is not working, or not

working well enough, they need to change it and switch things up in terms of study methods. This realization may have come over time, as in the case of Julia, or it may have been an abrupt instance, as it was for Luis who received an “F” on his first college math test, “an eye-opener, to say the least,” he says (INT-Luis.7/26/10.p30). Through this learning and growth experience, participants have come to know that it is worth taking the time to learn the material for class thoroughly when they are first introduced to it. Julia shares, “...then I realized if I wanted to continue not having to relearn and relearn, I should just learn. It’s easier to learn why it works, than just memorizing how to do it and what tricks to look for in a problem” (INT-Julia.7/21/10.p21-22). No matter which techniques, methods or study strategies participants have chosen to use, all agree that studying is a priority if they are to continue being successful engineering students.

Sub-theme: Assistance – Opportunities they give for extra learning.

These students are enrolled in a challenging major that requires dedication and perseverance to succeed. Their upper level courses are complex and demanding. Although they are confident in their ability to learn and perform at this academic level, participants realize that there are times when they will not understand the material presented. Their first inclination is to try and understand the material on their own. Joey states, “If I can’t figure it out by brute force, just attacking the problem, I will look for similar problems elsewhere....I would do some research online or I’ll crack a book....I can usually figure it out that way”

(INT-Joey.7/29/10.pp24-25). Most participants are confident that they can decipher most academic puzzles on their own. If this effort is unsuccessful, their second inclination is to ask other students, especially those with whom they are in a study group or class.

Neither of these two approaches is always successful. Occasions will arise when they will need clarification about a concept or a problem, beyond trying on their own or asking the other students. This group of students primarily utilizes two resources for dealing with the situation: faculty/TA's and tutoring.

Most participants are confident in the willingness of faculty members to give them academic assistance if needed. Overall, their experience with various faculty members has been positive. Julia shares, "If I ever have a question, I just go to the professor....they all have been really helpful...if I didn't get it the first time" (INT-Julia.7/21/10.p14). They feel comfortable about approaching their professors.

Some participants are intimidated by the thought of going to a particular professor's office hours. It is not that they feel that their help-seeking efforts are unwelcome. Rather, their experiences with professors under these conditions have left them with a sense of frustration. Because these professors are experts in their various fields, they have been unable to connect with participants at the level where the student needs help, an event that both Andres and Madeline experienced. Andres elaborates, "Sometimes I feel like 'God, I came and I wasted my time, because they told me they'd really try and help me out, but

they're just too smart – I don't know what they just said” (INT-Andres.4/1/11.p22).

Not all student-faculty interactions have been positive for participants. Luis and Madeline related encounters with several professors that were negative. However, even with these types of situations, most participants would not be hesitant to go to a faculty member for help.

There are also participants who prefer to go to their TA's for help. This preference may exist for several reasons. Students have more experience interacting one-on-one with their TA's during the recitation portion of a class. TA's also seem closer in age to these students and are therefore less intimidating. Participants also related feeling that the TA's are more understanding of their situation as undergraduate students and are better able to explain complex concepts in a way that is more easily understood.

The second type of academic assistance employed by participants was tutoring. Various types of on and off campus tutoring is available at Texas A&M and both were utilized by participants. More participants took advantage of the on-campus tutoring offered by various academic departments than that offered by off-campus companies. Tutoring and help sessions for math were, by far, the most referenced academic assistance subject by participants. Several of the participants mentioned attending tutoring sessions at various off-campus locations, but stressed that those were mainly for lower level courses. Itzeth had attended Supplemental Instruction (SI), a peer facilitated tutoring/study group,

upon occasion in some of her non-engineering courses. Some participants, such as Andres and Joey, did not make use of this resource, preferring the assistance processes discussed above. While tutoring was not a widely-used resource, participants felt that it was important that it had been available when they needed it and, overall, found it to be of benefit, particularly in the beginning of their academic journey at A&M. Itzeth shares, “I would try to take advantage of like all the opportunities that they would give for extra learning” (INT-Itzeth.4/3/11.p25).

Summary of Findings

In summary, this chapter was devised to demonstrate my analysis of the data collected. Through a semi-structured interview process, seven participants were asked to reveal their perceptions about the factors that have contributed to their academic success and how each one of them perceived the process of becoming a successful student.

Using the content analysis process, four major themes emerged that comprised the perceptions of these participants. These themes are: *Versatility: That’s a different way of seeing things that I never thought of before;* *Individuality: I’ve gotten more of a sense of who I am;* *Essence: That’s just how we are;* and *Successful Study Strategies: I realized if I wanted to continue not having to relearn and relearn, I should just learn.* Additionally, each theme included sub-themes which included: *Undergraduate experience: It turns out that college is for me;* *Self: Here I’ve been able to grow myself;* *People: I*

realized I wasn't alone; Campus engagement: I've been involved in a lot of stuff; Encouragement: Nobody limits you but yourself; Family: I appreciate my family a lot more than I used to; Culture: You have more in common; Transitions: It was a hard semester my first semester; Approach: You actually have to know what's going on; and Assistance: Opportunities they give for extra learning.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter includes conclusions, study limitations and implications for future practice and research. As described in Chapter I, this study focused on the following research questions: *How do high-achieving Hispanic students majoring in engineering view their academic success? What strategies are employed by high-achieving Hispanic students to be successful? and What environmental factors do high-achieving Hispanic students majoring in engineering view as contributing to their success?*

This chapter will illustrate how the conceptual framework was utilized to answer the research questions of the study through the emergent themes. Then, recommendations for practice and policy as well as recommendations for future research will be discussed. This chapter will conclude with a discussion of the limitations that arose during the course of my investigation and how these may have impacted my findings and conclusions.

Relation to Conceptual Framework

The underlying conceptual framework for this study was student academic success. Although there is no specific theory that addresses academic success, some of the factors that comprise a student's academic success have been recognized. Academic success at the undergraduate level

has generally been gauged by grades. College grades, along with progress towards degree –the number and level of courses completed – are used as predictors of the likelihood or not of a student to continue to be enrolled at an institution and to graduate. These factors are also used as predictors of the likelihood of a student's admittance to graduate or professional school (Pascarella & Terenzini, 2005).

Students who attend a small four-year institution, are enrolled on a full-time basis, and live on-campus, have a tendency to earn higher grades as opposed to students who attend a two-year institution or a larger four-year institution, are enrolled part-time and commute to campus (Pascarella & Terenzini, 1991; 1998; 2005). This is not to say that the latter holds true for all students. Indeed, there are many students who, for various reasons, find themselves in the second group and yet have high grades. These factors are simply a trend that have been identified.

The students who participated in my study were all considered academically successful in terms of grades. They had a 3.0 or higher GPR on a 4.0 scale and were classified as U3 (juniors) or higher in terms of classification. All were on track to complete their undergraduate degree within a 4-5 year time period.

Other factors that play a role in student academic success are student involvement and engagement (Astin, 1993; Tinto, 2006). Students who are actively involved, whether academically or on an extracurricular basis, have a

higher likelihood of academic success in terms of grades. This involvement may take the form of academic organizations, such as a majors-related society, or social organizations, such as intramural sports competitions, Greek organizations, or religiously affiliated groups. For some students, part-time work on campus, whether in a work-study position or not, may constitute involvement. Whatever the group(s), involved students are more likely to be invested in their education and committed to their university, thus more likely to be academically successful.

The students who participated in my study were all involved on the A&M campus. They were engaged in a number of activities listed above. In addition, all of them either worked or were involved in some sort of research. These students were considered successful in terms of campus involvement and engagement.

Students who participated in my study were asked to reflect upon their concept of academic success, along with what they considered to be contributing factors. In conjunction with this conceptual framework, I used topics gleaned from the literature (see Chapter II) to formulate the topics covered in the questions asked of participants in my study (see Appendix E). Questions were designed and phrased in such a way as to elicit the reflections of participants about their educational experiences, both before and during college, as high-achieving Hispanic students majoring in engineering at Texas A&M University and how they felt those experiences related to their academic success.

Summary and Discussion of Results

This study provides a useful contribution to our understanding of how high-achieving Hispanic students majoring in engineering perceive the experiences that contributed to their academic success. It also has implications for future practice for those in higher education fields who work with these and similar students. The themes of this study both reaffirmed and expanded my understanding of the issues and challenges faced by Hispanic students in a higher education setting. Included in the study's discussion is a condensed review of the findings to the study's research questions of (1) how do high-achieving Hispanic students majoring in engineering view their academic success, (2) what strategies are employed by high-achieving Hispanic students to be successful, and (3) what environmental factors do high-achieving Hispanic students majoring in engineering view as contributing to their success. It is important to note that while these questions and themes are presented as separate and distinct matters for purposes of deeper understanding in this study, in the day-to-day lives of these students these divisions may be hazy. An example of this haziness might be the topic of "family." While I have chosen to connect "family" to the theme of *Essence: That's just how we are* for this study, the importance of family where these individuals are concerned is integrated into all areas of their day-to-day lives and its influence is not easily separated out.

Theme one: Versatility. These students are able to modify their behaviors and beliefs. They evaluate what is happening around them and make

the necessary adjustments in their lives to be successful on both a general and an academic level. Through various life experiences, they have honed this skill. Their perception of this skill is that it is simply a part of life and several of them do not seem aware that this is something they consciously do, particularly on a day-to-day basis.

This study demonstrated that these students are willing to make changes, if they deem it necessary, to be successful. This has allowed them to examine their attitudes and opinions about a subject or situation and adapt their thinking if need be, as demonstrated by the change in outlook about acceptable types of financial aid. Their ability to evaluate situations has influenced where they have chosen to pursue their undergraduate education, as well as the institutions and majors under consideration for their education at the graduate level. Many of the decisions they have perceive to have “just happened” are actually a result of this ability. Their perception is that this flexibility and ability to change when it is essential to do so has contributed to their academic success and will, no doubt, contribute to their future life successes.

Through this versatility, these students have been able to make the necessary adjustments to their lives to earn high GPR's in an academically demanding field, a characteristic of academic success. They have made progress towards their degrees and are on course to graduate, even if they have changed majors, colleges or engineering disciplines. Because they are so

successful in the classroom, they are more likely to be actively involved in campus life.

Theme two: Individuality. The findings from this study indicate that these students exhibit a strong sense of identity. They know who they are and are confident in their abilities, especially their academic abilities. Their perception of themselves is that they are capable, confident individuals. They view their academic success as a by-product of knowing who they are and what works for them as individuals. The advice they offer to those coming along behind them in the educational pipeline reinforces this view of self-awareness and self-discovery.

For the majority of these students, this sense of self was not as robust at the time of their entrance to Texas A&M as it currently is. They attribute its increase during their time at A&M to the growth they have experienced as individuals due to their active involvement in campus life. Of particular consequence in their perception is the influence of having lived on campus during their first year(s) at A&M. During this time, they believe they acquired the necessary knowledge to help them successfully adjust to all facets of college life, both academic and otherwise.

This sense of individuality has been instrumental in their academic success at Texas A&M. In their perception, it has influenced their ability to obtain research opportunities with various professors and part-time work. It has provided them with the opportunities to be active in various student

organizations and to hold leadership positions within those organizations. This sense of self has reinforced for these students the necessity of perseverance and persistence as they strive to reach their goals, whether personal or academic.

Because these students have come to this greater sense of self-understanding, they have been able to become involved in campus life and are active members of the campus community, an attribute of academic success. They are involved in a variety of activities and organizations that reflect a variety of interests: professional/majors-related, social, racial/ethnic and spiritual. They are committed to Texas A&M as an institution, to their education at A&M, to their respective majors, to their organizations and to their friends. Thus, they are more likely to remain at A&M until graduation and, for some, beyond.

Theme three: Essence. In addition to having a strong sense of personal identity, these students also have a solid awareness of the cultural and environmental forces that provided the foundation of who they are. The prevailing perception of these students is that their families are the most influential elements in their upbringing. All of them spoke of their families with a deep sense of love and appreciation, no matter what their previous personal and/or family circumstances have been. The underlying assumption of these students is that their families were, and are, instrumental in their success as high-achieving students. Without their families, they would not have reached the level of success they have currently attained.

A deep-seated perception held by students is that the Hispanic culture, however it was defined by individual students, is also vital in helping to mold them into the individuals they have become. Regardless of their particular Hispanic origin (Mexico, Puerto Rico, Dominican Republic), students spoke of the elements of their culture that were important to them and how essential they felt these elements are to them. Family, faith, food and friends were mentioned repeatedly as essential components of the Hispanic culture that hold a special place in their hearts.

This powerful combination of family and culture is highly valued by these students. The perception they hold is that these two elements have interacted in such a way as to be the core of who they are. These students believe that this foundation is, perhaps, the singular most important source of their academic success. These students believe that they would not have overcome the challenges they have faced without this combination to support them.

In the perceptions of these students, without this strong foundation they would not have earned such outstanding grades. This support has also given them the confidence to be actively involved at A&M, along with the intention and desire to stay enrolled and involved, elements of academic success.

Theme four: Successful study strategies. There is no doubt that these students have figured out what it takes to be a successful engineering major at Texas A&M. Coming from a variety of academic backgrounds and levels of preparation, these students did what they could before attending A&M

to enhance their chances of academic success. All of them have taken advanced courses: pre-AP, AP and/or dual credit. They were aware that college was a higher, more difficult academic level than high school. Their perceptions coming to A&M were that they were as prepared as they could be and were well-equipped to handle college-level studies.

The reality of their experience was that they were not, in fact, prepared for the academic rigor of A&M. Several of them scored failing grades on exams and assignments early in their time at A&M. While these students may have experienced alarm when faced with this predicament, they did not give up and rose to meet the challenges of college level work. Attending a university is serious academic business, and they made the necessary adjustments to succeed.

While each student can recount making the necessary adjustments to ensure academic success, the group of them, as a whole, does not follow a precise set of procedures and strategies to achieve this success. Each student has his or her own set of study strategies that are utilized. Some students prefer study groups while others prefer solitary studying while still others prefer a combination of the two. Some students follow a set schedule for studying while others simply state that they're always working on school work.

The perception of these students is that they should generally be smart enough to understand difficult material without outside help. Since this is not always the case, however, they seek academic assistance when necessary.

Again, there is no consensus among them as to where this help should come from. Some of the students were comfortable approaching their professors while others preferred talking to their TA. A few of them had utilized tutoring, both on- and off-campus, and the overall perception was that tutoring was beneficial primarily for math courses, but not others.

There is no shared perception of what “studying” entails. For several of these students, “study” is what they do for an exam or quiz, which generally involves reviewing notes, reading textbooks, making note cards and, perhaps, reviewing with other students in the same class. Homework problems, programming and lab work are not “studying” but “class preparation.”

Regardless of their definitions, students did share the perception that academic success in college requires that the material be processed at a deeper level than it was in high school. Several of them related instances of how they now have to understand the “how” and “why” of information, rather than just the memorization of facts or problem solving tips in order to achieve academic success.

These students attribute at least a portion of their remarkable GPR’s – one measure of academic success – to the methods and strategies they use to study. The results of this academic involvement in the classroom provide them the self-assurance to become actively involved in other aspects of campus life so that they can be successful students, in and out of the classroom.

Recommendations for Practice

I have developed recommendations for practice that could be implemented to address some of the issues presented by the students I interviewed. These recommendations are based upon the conclusions listed above. Some of these recommendations concern currently implemented practices while others present new or modified practices.

While the phrasing of these recommendations is “Hispanic first-year engineering students” or “Hispanic engineering students” or “Hispanic students,” I do not mean to exclude other students, first-year or otherwise. My feeling is that all first-year students, regardless of race, ethnicity or major could benefit from these recommendations. However, since the subpopulation of interest for this student was Hispanic engineering students, I have used that phrasing.

Recommendation one. *Strongly encourage Hispanic first-year engineering students to live on campus.* The benefits of on-campus living for first-year college students have been well documented (see Astin, 1993; Pascarella & Terenzini, 2005, 1991). These students had all lived on campus during their first year at Texas A&M. Some had been involved in the ELLC which required residence in Mosher Hall, while others had lived in other dorms on campus. While there was some difference of opinion among these students about the tangible benefits of the programming and academic support services offered by the ELLC, students agreed that living in close proximity to other engineering students did facilitate their adjustment to college life. All of the

students I interviewed perceived that this arrangement contributed to their academic success, regardless of whether or not they had been involved in the ELLC.

While it is strongly tempting to recommend that on-campus living be a requirement for all first-year students, I recognize that this is not a logistical possibility. The availability of residential living spaces on campus at A&M is a limited commodity, especially at the current point in time where older dorms are being demolished and new residence halls are under construction. On-campus housing for undergraduate students is at a premium, a situation that is not likely to change in the near future. Perhaps an alternative would be to set aside a percentage of available dorm rooms for these students.

Recommendation two. *Strongly suggest Hispanic engineering students be involved in a majors-related learning community.* The success of learning communities in the academic success and retention of undergraduate students has been broadly acknowledged (see Astin, 1993; Pascarella & Terenzini, 2005, 1991). Students who were interviewed for this study commented that knowing other engineering students, particularly within their engineering discipline, was a great benefit for them. Students who were enrolled in clustered courses within their major found that having a connection to other engineering students provided them with additional resources in both their academic and extracurricular adjustments to college life. Their perception was that there was a sense of camaraderie that formed, particularly as they advanced to upper level

courses. Knowing others in the same major made it easy for these students to form study groups, if they were so inclined.

At the point in their academic careers that I interviewed these students, all but two had moved off campus. The majority of them were living with students they had met in their engineering classes. Because of the demanding academic workload of their respective engineering disciplines, they felt that roommates/apartment-mates who shared their same academic challenges was a plus and reduced possible conflicts. During the interview process, I found that students who had participated in the ELLC were more enthusiastic about the learning community aspect than the living community aspect of it. Since living on campus at A&M is not a possibility for all first-year students, this strongly encouraged recommendation is a more likely scenario. It is also a recommendation that could apply to all first-year students, regardless of their major.

Recommendation three. *Expose Hispanic engineering students to a variety of study strategies and methods early in their college career.* Like many first-year students, these students were not prepared for the academic rigor of college courses, particularly those that were related to their major. This frustrated them. This frustration was compounded by having to take pre-requisite math and science courses.

Students involved in the ELLC reported that part of the academic support provided to them was a series of workshop presenters who covered such topics

as time management and textbook reading. Their perception of this support was that it was not particularly helpful. Presented in isolation, the information did not have the impact it might have had it been presented in conjunction with actual class-related material.

Working in cooperation with more experienced students and professors of their engineering courses, options could be designed to remedy this situation. One option might be for students to be co-enrolled in an academic support course that directly correlated study strategies and techniques with the material presented in their other courses. Several participants had been enrolled in a similar course and even though it was not a clustered course with co-enrollment, participants related how helpful it had been in navigating their adjustment to college-level work. Another option might be for students to be assigned to study groups that would be facilitated by more experienced students acting as mentors/tutors. Whatever the options, it is important that students recognize the value of what is being offered and be strongly encouraged to utilize them. It is also important that there be a variety of academic support activities available so that students can be exposed to multiple approaches for learning at the deeper level they have discovered is vital for their academic success.

Recommendation four. *Expose Hispanic engineering students to Hispanic-oriented organizations at the onset of their college career and strongly encourage their involvement in these organizations.* As detailed in Chapter IV, celebrating their Hispanic culture is extremely important to these students.

Participants related the pride they feel in their Hispanic heritage. It was one of the primary forces that had helped to mold them into the individuals they had become and strengthening their academic successes. Participants repeatedly shared the significance of their culture and the role it played in forming their character. They also spoke about the importance of having people in their college lives with whom they could continue to experience the facets of this culture they consider to be so very essential: language, food, family, friends and faith. Although not all participants place the same level of significance on all facets, such as the importance of speaking Spanish with friends, all agree that their culture is critical to who they are and that being able to continue to celebrate their culture is vital to their success as students.

Another reason these students were so academically successful was due to their involvement in various student organizations – whether Hispanic in orientation or not. This engagement was considered by these students to be foundational to their academic success. Through this involvement, these students were able to form lasting connections with others – fellow students, faculty and staff – in the campus community thus enhancing their likelihood of being successful, as well as high-achieving, students who succeed in completing their undergraduate education.

Combining the two components (Hispanic and student organization) further bolsters the success of these students. The organizations to which first-year Hispanic students are exposed do not necessarily need to be engineering-

related to be beneficial. Although there certainly should be some that are majors-related, it is also important to provide organizations that are social, community, honors or religiously affiliated. What is important is that they offer these students an opportunity to celebrate their Hispanic heritage.

Recommendation five. *Educate the campus community about the distinctive educational attributes of Hispanic engineering students.* To enhance the academic prospects of these students it is important that those forming and implementing educational policies and practices at the campus level be aware of the unique qualities and expectations Hispanic engineering students bring with them to college.

Because a great number of these students are likely to qualify for financial aid, it is important that those in charge of financial aid at the institutional level are cognizant of the changing perceptions of Hispanic engineering students regarding types of financial aid. As outlined in Chapter II, Hispanic students are traditionally thought to be loan averse when it comes to matters of financing their education (Brown, Santiago, & Lopez, 2003; Schmidt, 2003, St John, 2000). As was demonstrated by the participants of this study, that is not always the case. While the majority of my participants began their venture into higher education not willing to accept loans as a form of financial aid, their perceptions changed as they realized the earnings potential of an engineer. Financial aid officers need to be aware that such a shift is possible, at least where engineering majors are concerned.

The suggestion here is not that students be forced to accept loans as their primary source of financial aid, especially during their first years of attendance at an institution. Indeed, offering primarily loans (or only loans) to a Hispanic student, particularly a first-generation student, just beginning their college career may cause the student to choose to attend another institution. Hispanic students who are majoring in a high-earnings field, however, may be willing to accept loans for the latter part of their undergraduate education once they have an understanding of their future earnings. It is possible that more advanced students or recent graduates could assist in educating new and potential students in this arena.

Beyond financial aid issues and personnel, university personnel need to be informed of the unique attributes of these students particularly where their connection to family is concerned. As detailed in Chapter II, “family” is an important concept to Hispanic students. Discussion has taken place regarding the amount of support Hispanic family members can and do offer to their students, if any at all, particularly to first-generation college students (see Personal Issues, Family, in Chapter II). The students who took part in this research project help clarify this issue. Regardless of their generational status, all participants were adamant that they had their family’s support as they worked towards the goal of earning a bachelor’s degree. Support was forthcoming in a variety of forms (money, time, verbal, visiting, etc.) and participants had no difficulty citing specific instances of this support.

University personnel need to figure out how to capitalize on this close relationship and support to assist Hispanic engineering students, particularly those who are first-generation, with their academic success. It is important that the “specialness” of the relationships Hispanic engineering students have with their families be respected. These students are aware that their primary task is to earn their college degree and they know that they have the familial support necessary to do so and they should not have to wrestle with conflicting cultural expectations between what is important and familiar for them and those of the university.

Recommendations for Policy

The projected growth of the Hispanic population in the US brings with it an anticipated increase in the number of Hispanic students attending college. As detailed in Chapter II, this group encounters unique issues in their pursuit of a college degree. Assisting Hispanic students in the successful navigation of these challenges calls for resources and support from a broader base beyond individual departments and colleges within a university. Based on my findings, I developed the following recommendations for policy.

Recommendation one. *Promote the formation of comprehensive campus inter-cultural centers that actively engage all citizens of the university community (students, faculty and staff) focusing on the benefits of having a diverse campus environment.* Having a racially and ethnically diverse campus has been shown to increase students’ intellectual development (Cole, 2007). It

has also revealed to contribute to higher complex and critical thinking skills in addition to increasing the cultural and social awareness of students (Hurtado, 2007).

Many campuses have multi-cultural or diversity centers or departments, each of which may focus on a specific audience, such as students or faculty. This recommendation goes beyond a primarily student-centered or faculty centered approach to advocate for a centralized department that involves all individuals at the university, regardless of rank or status. It would continue to support and provide culturally “safe” places for members of the university community, particularly students who are members of a particular race, culture or ethnicity, to recharge their cultural batteries and provide that necessary sense of home-away-from-home that many minorities need (Edwards, 2004; Jones, Castellanos, & Cole, 2002). It would also be responsible for promoting interactions both between minority cultures and the dominant (usually White) culture of the institution, as well as between and among the different minority cultures themselves. Such an approach would benefit the entire university community and beyond (see, Gurin, Dey, Hurtado, & Gurin, 2002; Hurtado, Milem, Clayton-Pedersen & Allen, 1998; Rudenstine, 2001).

For these students in particular, one benefit of such a center would be the education of the campus community about what it means to be “Hispanic.” An important point made by participants is that “Hispanic,” as a term, covers a multitude of geographic and cultural features. Depending on the location of the

university in question, a student that self-identifies as “Hispanic” may be automatically assigned to a particular Hispanic group. In Texas, for example, a student would probably be unthinkingly classified as Mexican or Mexican-American by university personnel due to the large number of Mexican and/or Mexican-American residents of the state. A student who professes a different Hispanic affiliation may be insulted by this – not necessarily because they have negative feelings about Hispanics from Mexico, but because of the lack of knowledge about Hispanics and the assumptions being made. There is a great variety of cultures, history, traditions and even linguistics among the variety of sub-groups that comprise the Hispanic population. When non-Hispanic members of the university community know and understand about the variety of Hispanic identities, students will feel more welcome and integrated into the campus community and thus be more successful, both academically and otherwise, as students.

Another need that an intercultural center could address is assisting the general university populace in realizing that there is no one Hispanic “look.” Not all Hispanic individuals exhibit what many consider to be the visual features of looking Hispanic – dark hair and eyes with dark olive-toned skin – due to the great variety of appearances within the races that may be associated with “Hispanic.” For students in this study, to be judged as not “Hispanic-enough-looking” (or sounding) because of inaccurate stereotypes held by others was as insulting as being miscategorized within the Hispanic population.

Recommendation two. *Actively promote faculty interaction with undergraduate students.* Positive interactions with faculty, both inside and outside of the classroom, contribute positively to student retention (Pascarella & Terenzini, 1998). Within the classroom, faculty not only help to ensure learning, but can also enhance positive inter-cultural interactions among students from diverse backgrounds (Hurtado, Milem, Clayton-Pedersen, & Allen, 1998). Outside the classroom, positive interactions with faculty not only provide students with academic assistance and guidance with regards to course content, they can expose students to research and other career building opportunities (Park & Denson, 2009). The effects of positive relationships between students and faculty are increased if both are members of underrepresented populations (Hurtado, Milem, Clayton-Pederson, & Allen, 1999). Beyond grades, faculty can be influential in a student's academic success and integration into an educational setting.

Beyond these more traditional faculty-student roles are others that faculty can be encouraged to undertake, and that some do fill. Faculty can be encouraged to be sponsors for student organizations. These organizations may be majors-related or may be cultural or social organizations. Faculty could also be mentors, either in an individual or small group setting, for students from underrepresented populations.

Faculty may be unaware that there is even an issue here that needs to be addressed. They are busy individuals and may be reluctant to undertake these

new roles. Faculty may feel unprepared to undertake this new task. Resources to ease these concerns should be provided. Offering workshops or other educational resources might help to alleviate this resistance. Monetary compensation or release time may be an option. In order to succeed, support for this type of initiative must come from the upper-levels of the university. It must be clear that this is an imperative of the university and that whatever resources are necessary will be provided.

Recommendation three. *Increase Hispanic students' awareness of careers in engineering.* As discussed in Chapter I, the number of students considering engineering as a career is decreasing (NAS, 2007). In addition, the number of Hispanic students enrolling in engineering programs is also on the decline (Gibson, 2008). To reduce this trend, a concentrated effort must be made to expose students to the prospects available to them in engineering careers. To be successful, this challenge will likely require national efforts.

As established in Chapter III, participants in this study, while aware of engineering as a broad field, were not aware of the nature, duties and tasks that are required of an engineer in his or her occupation. Attempts must be made to expose Hispanic students, as early as elementary school, to engineering as a potential career. National organizations such as the National Science Foundation (NSF) have resources available to assist educators in these efforts (NSF, 2012) as does the American Society for Engineering Education (ASEE)

(ASEE, 2012). MAES, the organization with which Joey was so involved, has this as one of their organizational goals (MAES, 2012).

A lofty goal, to be certain, the continuation of these efforts, as well as those of other organizations not featured, will require public awareness campaigns, educational campaigns and substantial funding to be successful. In addition, institutions such as the Dwight Look College of Engineering at Texas A&M University (TAMU-COE) will need to continue their outreach programs to potential students (TAMU-COE, 2012).

Recommendations for Further Research

My findings suggest that high-achieving Hispanic engineering majors have much to share in terms of how they perceive their realization of academic success. Although this study provides insight into the experiences of the students who were interviewed and offers recommendations to improve the academic experiences of Hispanic engineering students, it also raises questions that invite further research. This research is especially important considering the anticipated growth of this minority group (Census, 2008b) and the existing gap between Hispanics and Whites in the engineering fields (Gibson, 2008). To add to the existing knowledge base, I recommend further research be conducted with successful Hispanic engineering majors (GPR of 2.5 to 3.0), with high-achieving Hispanic engineering majors who have completed their education and are currently working in industry, and with high-achieving Hispanic students in majors other than engineering. To further enhance the current understanding, I

also recommend that this study be replicated using a different conceptual framework. Within each of these recommended studies, I recommend that similarities and differences between first-generation and non-first-generation Hispanic students be examined.

Recommendation one. *Study successful Hispanic engineering majors with a GPR of 2.5 to 3.0, who have attained U3 or high standing at Texas A&M.* For the current study I researched the perceptions of Hispanic engineering students who were considered “high-achieving” because of their GPR’s. These students have excelled in a demanding major. Knowing why some students excel, however, does not tell us why other students do not. By exploring the perceptions of successful, rather than high-achieving, Hispanic engineering students I hope to gain a greater understanding of their perceptions of their academic success as well as the issues they face and how these perceptions and issues compare to those of the high-achieving students in the current study. My recommendation is that the study be conducted at Texas A&M so that factors such as size, level of academic rigor and graduation requirements are constant across the two groups of students.

Recommendation two. *Study high-achieving Hispanic engineering majors who have completed their education and are currently working in industry.* The students who participated in my study were currently in the throes of their undergraduate work. All of them anticipated attending graduate school and, based on their academic standing at the time of our interviews, there was

no reason to think that there would be any issues with their admission and successful completion of advanced degrees. Hindsight often brings clarity and it is possible that their perceptions of their undergraduate academic success changed over time. Knowing what those perceptions are as college graduates, and why they changed, could provide valuable guidance for those tasked with working with current undergraduate students.

Recommendation three. *Study high-achieving Hispanics who are majoring in disciplines other than engineering.* The US Census Bureau asserts that Hispanics are the fastest growing minority group in the US (Census, 2008). While all the students who participated in this study were engineering majors, not all Hispanic college students major in engineering. Exploring the perceptions of high-achieving Hispanics in disciplines other than engineering would provide the opportunity to compare and contrast their experiences and perceptions across disciplines. My suggestion is that this study be conducted at Texas A&M. While the definition of high-achieving would probably vary from discipline along with perceived difficulty of coursework, other institutional factors would remain constant. The results from this study could potentially provide valuable insight into the academic success factors of high-achieving Hispanic college students on a wider basis.

Recommendation four. *Replicate this study using a different framework.* This study was situated within the conceptual framework of student academic success. As such, this framework guided the structure of the study

and the analysis of my data. Part of the attraction of this framework for me is its focus on what students are doing “right,” i.e., achieving academic success, rather than a focus on what they are doing “wrong,” i.e., failing classes, being placed on academic probation. It was a starting point for my research and provided me with valuable insights. As do all frameworks, it has its limitations. By focusing on academic success, which included grades and campus engagement, other aspects of student success may have been discounted. By examining the issue of academic success through the lens of a different framework, a more complete picture may develop that can further enhance our understanding of what makes these particular students successful.

Through my exploration of this study, two other positive frameworks have surfaced that I feel could help advance the understanding of this topic: Padilla’s Expertise Model (Padilla, Trevino, Gonzalez & Trevino, 1997) and Resiliency Theory (Chavkin & Gonzalez, 2000). While elements from both of these frameworks surface in the insights gained through my study, they are not as thorough as they would have been if the study had been conducted using one or both of these frameworks.

In its condensed form, Padilla’s Expertise Model holds that successful college students acquire two kinds of knowledge – theoretical and heuristic (Padilla, et al., 1997). Theoretical knowledge is primarily comprised of formal knowledge that students learn from books and through class lectures – academic knowledge. Heuristic knowledge, on the other hand, is comprised of

practical knowledge that students must amass, generally from other students, in order to successfully navigate the higher education system. While theoretical knowledge is considered to be the same across institutions, heuristic knowledge is institution-specific. Because my research questions were not framed in such a way as to explore the acquisition of heuristic knowledge by the students I interviewed, I cannot with certainty address what specific heuristic knowledge they gained, nor can I speculate how they might have gained such knowledge. Conducting a study using Padilla's Expertise Model as a framework would augment the insights provided by the current study.

Resiliency Theory posits that due to positive factors in the support system of at-risk individuals, these individuals are able to overcome challenging circumstances and adversity (McMillan & Reed, 1994). These support systems may be caregivers, such as relatives, at home or compassionate individuals at school. Because they have this support, resilient students develop positive outlooks on life in spite of the difficulties and challenges they have had to overcome in order to succeed (Hassinger & Plourde, 2005). Again, because my study was not constructed using this framework, I cannot attribute my findings to this theory, although certain of my findings would seem to substantiate this theory.

Valuable insights were gained through the current study. Replicating this study within one or both of these frameworks would result in a deeper

understanding of how high-achieving Hispanic students realize academic success.

Limitations

All studies have limitations and this one was no exception. As detailed in Chapter I (see Researcher's Positionality), going into this endeavor I was aware of the possible influence that my age and race might have played in the interactions with my participants. Therefore, I did my best to insure that they were at ease and comfortable discussing their educational experiences with me. As I conducted this research, I was especially conscious about not interpreting their experiences from my viewpoint and did my utmost to make sure that their experiences were accurately represented from their perspective. I was careful to honor and respect the experiences shared with me as *their* interpretation of their experiences and not my interpretation of those experiences. Despite these efforts, it is possible that my age and race may have caused participants to withhold information that would have been valuable for this study.

A second limitation was that this study focused on success factors, particularly academic success factors, of high-achieving Hispanic students who were in a demanding major. One attribute of academic success is knowing where to go and what to do for assistance when an academic challenge is encountered, something not often experienced by these students. The number and type of academic assistance resources they made use of were very limited. The very fact that they were high-achieving may have skewed their perceptions

of their actions, particularly as related to utilizing available academic assistance resources. Because they were so successful, their need for such resources may have been unimportant to them. They may have been unable to recall using these support services because they had not.

A final limitation to this study was that students were being asked to reflect upon a situation in which they were currently actively involved. Although participants had reached upper-level status (U3 or higher) which provided some degree of experience and opportunity for reflection about their academic achievements, they were still undergraduate students pursuing an academically demanding degree. Between their classes, studying, research, and student organizations these students were extremely busy. Coordinating schedules to set up interviews was a logistical challenge. While they seemed willing and eager to tell me their stories once we were together, it was evident that their schedules were packed. Because of this high level of activity, their ability to accurately reflect upon their circumstances and experiences may have been distorted. Time and distance from these hectic schedules and demanding endeavors may (or may not) provide a more accurate interpretation of their understanding of the factors that contributed to their success.

Summary and Conclusions

The objectives of this study were to examine the perceptions of high-achieving Hispanic students majoring in engineering with regard to their academic success. It sought to identify some of the factors to which these

students attribute their academic success as well as how each of them perceived the process of becoming an academically successful student.

Based upon my analysis from the guiding questions and collapsing across the various themes summarized above, I reached the following conclusions:

- These participants have a sense of agency. They feel that they have control over their futures. The goals they set are their own and they know what they must do in order to achieve them. They are active and deliberate in determining which actions they take and what decisions they make. Others will not determine their accomplishments and they will not be dissuaded from their chosen path.
- These participants have a high sense of self-efficacy. They are confident in their ability to achieve their goals. Hard-won for some of them, they know they can accomplish the tasks set before them because of past experiences. Success breeds success in their minds, and because of the challenges they have overcome, they are secure in their ability and in the likelihood that they will continue to overcome, whether major or minor challenges, and succeed.
- These participants are adaptable. They are able to analyze the situations in which they find themselves and make the necessary adjustments to be successful. Challenges do not overwhelm them and they are adept at

modifying their thinking and behavior when necessary to not only survive, but thrive.

- These participants are realistically optimistic. They are open to considering available options but are aware of the sacrifices and effort it may take to achieve their goals. They are motivated individuals who like to learn and are inquisitive about a variety of matters.
- These participants are self-aware. They know their strengths and their limitations as individuals and the environmental influences that helped to shape them. While they are not hesitant to contemplate new possibilities, they are able to identify what works best for them and know why it is the alternative that works best for them.

These students have successfully navigated the process of earning an engineering degree from Texas A&M University, a demanding endeavor. They have figured out the system and are thriving. “Look out world!” could be the mantra they use to describe how they view their future. Their prospects are bright and they are confident in their abilities to excel. They have worked hard to get where they are and they are prepared to continue this level of effort so that they may continue to succeed.

The title of this study is “Now I understand!” It was chosen because it captured the essence of what participants conveyed throughout this project. There are many things that they “now” understand. Being academically successful individuals, they “now” understand the intellectual and scholarly

material their various degrees require. For them, acquiring this academic knowledge is a given.

There is, however, so much more than that. They “now” understand themselves and their pasts in greater depth, in a way they did not before they began college at A&M. Knowing themselves, they are able to determine where they want to go with their futures. Knowing their pasts, they are able to appreciate who they are and how they developed into the individuals they are today.

They “now” understand their friends and family better and can appreciate the contributions these people make in their lives. Because of this deeper knowledge, these students will not undervalue the richness and meaning other people add to life. “Now” they can understand their culture and the culture of others with a wisdom borne of knowing why culture is important. These things will no longer be taken for granted.

“Now” they begin to understand how to understand, realizing that knowing “now” now will help them know “now” in the future. All of this understanding was gained through their hard work and perseverance.

Although the findings from this study have been presented as if they exist in isolation, it is important to acknowledge that they can never be truly separated from each other. Like looking through the lens of a kaleidoscope, the individual objects are ever present while the pattern being viewed is ever changing. They

overlap and interconnect in such a way as to generate new associations each time they are examined. May such associations continue to emerge.

REFERENCES

- Aleman, A. (2006). Latino demographics, democratic individuality, and education accountability: A pragmatist's view. *Educational Researcher*, 35(7), 25-31.
- American Association of State Colleges and Universities [AASCU]. (2007). *Hispanic student success in state colleges and universities: Creative supportive spaces on our campuses*. New York, NY: AASCU.
- American Society for Engineering Education [ASEE]. (2012). *American society for engineering education*. Washington, D.C.: ASEE. Retrieved on March 3, 2012 from <http://www.asee.org/>.
- Anderson, E., & Kim, D. (2006). *Increasing the success of minority students in science and technology*. Washington, D.C.: American Council on Education.
- Arbona, C., & Nora, A. (2007). The influence of academic and environmental factors on Hispanic college degree attainment. *The Review of Higher Education*, 30(3), 247-269.
- Astin, A.W. (1993). *What matters in college? Four critical years revisited*. San Francisco, CA: Jossey-Bass.
- Astin, A.W., Tsui, L., & Avalos, J. (1996). *Degree attainment rates at American colleges and universities: Effects of race, gender, and institutional type*. Los Angeles, CA: Higher Education Research Institute, UCLA.

- Attinasi, L.C. (1989). Getting in: Mexican Americans' perceptions of university and the implications for freshman year persistence. *Journal of Higher Education*, 60(3), 247-277.
- Auerbach, S. (2004). Engaging Latino parents in supporting college pathways: Lessons from a college access program. *Journal of Hispanic Higher Education*, 3(2), 125-145.
- Ayala, C., & Striplen, A. (2002). A career introduction model for first-generation college freshmen students. In G.R. Walz, R. Knowdell, & C. Kirkman (Eds.), *Thriving in challenging and uncertain times*, (pp. 57-62). Greensboro, NC: ERIC Counseling and Student Services Clearinghouse. (ERIC Document Reproduction Service No. ED 469991)
- Benton, M.A. (2005). Challenges African American students face at predominantly white institutions. Retrieved on November 14, 2009 from www.colostate.edu/Depts/SAHE/JOURNAL2/2001/Challenges.htm.
- Bogdan, R.C., & Biklen, S.K. (Eds.) (1998). Foundations of qualitative research in education. In *Qualitative research for education: An introduction to theory and methods (3rd ed.)* (pp. 1-48). Boston, MA: Allyn and Bacon.
- Bonner, F.A. (2001). *Gifted African American male college students: A phenomenological study*. Storrs, CT: The National Research Center on the Gifted and Talented.

- Bordes-Edgar, V., Arredondo, P., Kurpius, S.R., & Rund, J. (2011). A longitudinal analysis of Latina/o students' academic persistence. *Journal of Hispanic Higher Education*, 10(4), 358-368.
- Boyer, E.L. (1987). *College: The undergraduate experience in America*. New York, NY: Harper & Row.
- Brown, C. (1991). Increasing minority access to college: Seven efforts for success. *NASPA Journal*, 28(3), 224-230.
- Brown, S., Santiago, D., & Lopez, E. (2003). Latinos in higher education: Today and tomorrow. *Change: The Magazine of Higher Learning*, March/April, Retrieved on April 4, 2010 from <http://www.EdExcelencia.org>.
- Cabrera, N.L., & Padilla, A.M. (2004). Entering and succeeding in the "culture of college:" The story of two Mexican heritage students. *Hispanic Journal of Behavioral Sciences*, 26(2), 152-170.
- Carnegie Foundation for the Advancement of Teaching [Carnegie]. (2009). *Carnegie institutions: Institution lookup*. Retrieved on November 14, 2009 from http://classifications.carnegiefoundation.org/lookup_listings/institution.php
- Ceballo, R. (2004). From barrios to Yale: The role of parenting strategies in Latino families. *Hispanic Journal of Behavioral Sciences*, 26(2), 171-186.
- Chang, M.J., Denson, N., Saenz, V., & Misa, K. (2006). The educational benefits of sustaining cross-racial interaction among undergraduates. *The Journal of Higher Education*, 77(3), 430-455.

- Chavkin, N.F., & Gonzalea, J. (2000, October 10). Mexican immigrant youth and resiliency: Research and promising programs. *ERIC Digest*. Charleston, WV: ERIC/CRESS. (ERIC Document Reproduction Service Document No. ED447990) Retrieved on October 24, 2011 from www.eric.ed.gov.
- Chrispeels, J.H., & Rivero, E. (2001). Engaging Latino families for student success: How parent education can reshape parents' sense of place in the education of their children. *Peabody Journal of Education*, 76(2), 119-169.
- Clark, K. (2008, October 30). How much is that college degree really worth? A new report estimates--to the dollar--how much a degree boosts your income and other benefits. *U.S. News & World Report* . Retrieved on September 26, 2009 from <http://www.usnews.com/education/articles/2008/10/30/how-much-is-that-college-degree-really-worth>.
- Coffey, A., & Atkinson, P. (Eds.) (1996). Concepts and coding. In *Making sense of qualitative data: Complementary research strategies* (pp. 26-53). Thousand Oaks, CA: Sage Publishing.
- Cole, D. (2007). Do interracial interactions matter? An examination of student-faculty contact and intellectual self-contact. *The Journal of Higher Education*, 78(3), 249-281.

- Contreras, A. (2004). Impact of Brown on multicultural education of Hispanic Americans. *The Journal of Negro Education*, 73(3), 314-327.
- Dennis, J., Phinney, J., & Chuateco, L. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, 46(3), 223-236.
- Denzin, N.K., & Lincoln, Y.L. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Diverse Issues in Higher Education. (2009). *Top 100 Undergraduate Degrees*. Retrieved on October 25, 2009 from <http://www.diverseeducation.com/top100Undergraduate2009.asp>.
- Dowd, A.C., Malcom, L.E., & Bensimon, E.M. (2009). *Benchmarking the success of Latina and Latino students in STEM to achieve national graduation goals*. Los Angeles, CA: Center for Urban Education, USC.
- Dwight Look College of Engineering, Texas A&M University [TAMU-COE]. (2012). *Engineering student services and academic programs: Resources for pre-college students*. College Station, TX: Texas A&M University. Retrieved on March 4, 2012 from <http://essap.tamu.edu/prospective.htm>.
- Edwards, H.T. (2004). The journey from Brown v. Board of Education to Grutter v. Bollinger: From racial assimilation to diversity. *Michigan Law Review*, 102(5), 977-978.

- ELLC (Engineering Living Learning Community). (2010) *Creating a community of scholars*. College Station, TX: Texas A&M University. Retrieved on March 4, 2012 from <http://essap.tamu.edu/ellc/brochure.htm>.
- Ferdman, B., & Gallegos, P. (2001). Racial identity development and Latinos in the United States. In C. Wijeyesinghe, & B. Jackson (Eds.), *New perspectives on racial identity development: A theoretical and practical anthology* (pp. 32-66). New York, NY: New York University Press.
- Firestone, W.A. (1987). Meaning in method: The rhetoric of quantitative and qualitative research. *Educational Researcher*, 16(7), 16-21.
- Fisher, M. (2007). Settling into campus life: Differences by race/ethnicity in college involvement and outcomes. *The Journal of Higher Education*, 78(2), 125-161.
- Fry, R. (2002). *Latinos in higher education: Many enroll, too few graduate*. Washington, D.C.: Pew Hispanic Center Report.
- Gall, M.D., Gall, J.P., & Borg, W.R. (2007). *Educational research: An introduction (8th ed.)*. Boston, MA: Pearson Educational.
- Gandara, P. (2005). Fragile futures: Risk and vulnerability among Latino high achievers. *Policy Information Report*. Princeton, NJ: Educational Testing Service.
- Garcia, J.A. (2003). *Latino politics in America: Community, culture, and interests*. Lanham, MD: Rowman & Littlefield.

- Gibson, M.T. (2008). *Engineering by the numbers*. Washington, D.C.: American Society for Engineering Education. Retrieved on September 26, 2009 from www.asee.org/publications/profiles/upload/2008ProfileEng.pdf.
- Gonzalez, K. (2002). Campus culture and the experiences of Chicano students in a predominantly White university. *Urban Education*, 37(2), 193-218.
- Gonzalez, K., Jovel, J.E., & Stoner, C. (2004). Latinas: The new Latino majority in college. *New Directions for Student Services*, 105(Spring), 17-27.
- Gorski, E. (2010, June 4). Hispanic college success: It's all in the family. *Diverse Education*. Retrieved June 4, 2010 from <http://diverseeducation.com/cashe/pring.php?articleID=13857>.
- Graunke, S.S., & Woosley, S.A. (2005). An exploration of the factors that affect the academic success of college sophomores. *College Student Journal*, 39(2), 367-376.
- Gurin, P., Dey, E.L., Hurtado, S., & Gurin, G. (2002). Diversity and higher education: Theory and impact on educational outcomes. *Harvard Educational Review*, 72(3), 330-367.
- Harper, S.R. (2004). The measure of a man: Conceptualizations of masculinity among high-achieving African American male college students. *Berkeley Journal of Sociology*, 2004, 89-107.

- Harrell, P.E., & Forney, W.S. (2003). Ready or not, here we come: Retaining Hispanic and first-generation students in postsecondary education. *Community College Journal of Research and Practice*, 27(2), 147-156.
- Hassinger, M., & Plourde, L.A. (2005). "Beating the odds": How bi-lingual Hispanic youth work through adversity to become high achieving students. *Education*, 126(2), 316-327.
- Helms, J., & Cook, D. (2005). Models of racial oppression and sociorace. In M. Wilson, & L. Wolf-Wendel (Eds.), *ASHE Reader on College Student Development Theory* (pp. 235-258). Boston, MA: Pearson Custom Publishing.
- Hernandez, J. (2000). Understanding the retention of Latino college students. *Journal of College Student Development*, 41(6), 575-584.
- Hernandez, J., & Lopez, M. (2007). Leaking pipeline: Issues impacting Latino/a college student retention. In A. Seidman (Ed.), *Minority student retention: The best of the Journal of College Student Retention: Research, theory & practice* (pp. 99-122). Amityville, NY: Baywood.
- Hurtado, S. (2007). ASHE Presidential Address: Linking diversity with the educational and civic missions of higher education. *The Review of Higher Education*, 30(2), 185-196.
- Hurtado, S., & Carter, D. (1997). Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology of Education*, 70(4), 324-345.

Hurtado, S., Carter, D., & Spuler, A. (1996). Latino student transition to college:

Assessing difficulties and factors in successful college adjustment.

Research in Higher Education, 37(2), 135-157.

Hurtado, S., Han, J.C., Saenz, V.B., Espinosa, L.L., Cabrera, N.L., & Cerna,

O.S. (2007). Predicting transition and adjustment to college: Biomedical and behavioral science aspirants' and minority students' first year of college. *Research in Higher Education*, 48(7), 841-887.

Hurtado, S., Milem, J.F., Clayton-Pederson, A.R., & Allen W.R. (1998).

Enhancing campus climates for racial/ethnic diversity: Educational policy and practice. *The Review of Higher Education*, 21(3), 279-302.

Hurtado, S., Milem, J., Clayton-Pedersen, A., & Allen, W. (1999). Enacting

diverse learning environments: Improving the climate for racial/ethnic diversity in higher education. *ASHE-ERIC Higher Education Report*, 26(8). Washington, D.C.: ERIC Clearinghouse on Higher Education.

Ishitani, T.T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *Journal of Higher Education*, 77(5), 861-885.

Jaschik, S. (2008a, September 12). Race and class matters at an elite college.

Inside Higher Education. Retrieved September 15, 2008 from

<http://www.insidehighered.com/layout/set/pringnews/2008/09/12/aries>.

- Jaschik, S. (2008b, October 9). Falling behind. *Inside Higher Education*. Retrieved October 9, 2008 from <http://www.insiderhighered.com/layout/set/print/news/2008/j10/09/minority>.
- Johnson, D.R., Soldner, M., Leonard, J.B., Alvarez, P., Inkelas, K.K., Rowan-Kenyon, H., & Longergeam, S. (2007). Examining sense of belonging among first-year undergraduates from different racial/ethnic groups. *Journal of College Student Development*, 48(5), 525-542.
- Jones, L., Castellanos, J., & Cole, D. (2002). Examining the ethnic minority student experience at Predominantly White Institutions. *Journal of Hispanic Higher Education*, 1(1), 19-39.
- Kanellos, N., & Esteva-Fabregat, C. (1993). General introduction to the Handbook of Hispanic Cultures in the United States. In N. Kanellos, & C. Esteva-Fabregat (Eds.), *Handbook of Hispanic Cultures in the United States: Literature and Art* (pp. 11-12). Houston, TX: Arte Publico Press.
- Kao, G., & Thompson, J. (2003). Racial and ethnic stratification in educational achievement and attainment. *Annual Review of Sociology*, 29, 417-442.
- Knight, M.G., Norton, N.E.L., Bentley, C.C., & Dixon, I.R. (2004). The power of Black and Latina/o counterstories: Urban families and college-going processes. *Anthropology and Education Quarterly*, 35(1), 99-120.
- Laird, T., Bridges, B., Morelong-Quainoo, C., Williams, J., & Holmes, M. (2007). African American and Hispanic student engagement at minority serving

- and predominantly White institutions. *Journal of College Student Development*, 48(1), 39-56.
- Lau, L. (2003). Institutional factors affecting student retention. *Education*, 124(1), 126-136.
- Leonardo, Z. (Ed.) (2009). The color of supremacy. In *Race, Whiteness, and Education* (pp. 75-90). New York, NY: Routledge.
- Lincoln, Y.S., & Guba, E.A. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.
- Locks, A.M., Hurtado, S., Bowman, N.A., & Oseguera, L. (2008). Extending notions of campus climate and diversity to students' transition to college. *The Review of Higher Education*, 31(3), 257-285.
- Longerbeam, S., Sedlacek, W., & Alatorre, H. (2004). In their own voices: Latino student retention. *NASPA Journal*, 41, 538-550.
- Lundberg, C.A., Schreiner, L.A., Hovaguimian, K.D., & Miller, S.S. (2007). First-generation status and student race/ethnicity as distinct predictors of student involvement and learning. *NASPA Journal*, 44(1), 57-83.
- Luz Reyes, M. de la & Halcon, J.J. (1997). Racism in academia: The old wolf revisited. In A. Darder, R.D. Torres, & H. Gutierrez (Eds.), *Latinos and education: A critical reader* (pp. 423-438). New York, NY: Routledge.
- Maxwell, J.A. (2005). *Qualitative research design: An interactive approach* (2nd ed.). Thousand Oaks, CA: Sage.

- McMillan, J.H., & Reed, D.F. (1994). At-risk students and Resiliency: Factors contributing to academic success. *The Clearing House*, 67(3), 137-140.
- Melendez, M.C., & Melendez, N.B. (2010). The influence of parental attachment on the college adjustment of White, Black, and Latina/Hispanic women: A cross-cultural investigation. *Journal of College Student Development*, 51(4), 419-435.
- Merriam, S.B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: John Wiley & Sons.
- Miles, M.B., & Huberman, A.M. (1994). *Qualitative Data Analysis (2nd ed.)*. Thousand Oaks, CA: Sage Publications.
- Munoz, D. (1986). Identifying areas of stress for Chicano undergraduates. In M.A. Olivas (Ed.) *Latino college students* (pp. 131-157). New York, NY: Teachers College Press.
- Murtaugh, P., Burns, L., & Schuster, J. (1999). Predicting the retention of university students. *Research in Higher Education*, 40, 355-371.
- Nagda, B.A., Gregerman, S.R., Jonides, J., von Hippel, W., & Lerner, J.S. (1998). Undergraduate student-faculty research partnerships affect student retention. *The Review of Higher Education*, 22(1), 55-72.
- National Academy of Sciences [NAS]. (2007). *Rising above the gathering storm: Energizing and employing America for a brighter economic future*. Washington, D.C.: National Academies Press. Retrieved on October 25, 2009 from <http://www.nap.edu/catalog/11463.html>.

National Center for Educational Statistics [NCES]. (2009). *Students who study science, technology, engineering, and mathematics (STEM) in postsecondary education*. Washington, D.C.: U.S. Department of Education.

National Science Board. (2006). *America's pressing challenge -- Building a stronger foundation*. Arlington, VA: National Science Foundation.

National Science Foundation [NSF]. (2012). *Resources for STEM Education*. Washington, D.C.: National Science Foundation. Retrieved on March 4, 2012 from <http://www.nsfresources.org/home.cfm>.

Niu, S.X., Sullivan, T., & Tienda, M. (2008). Minority talent loss and the Texas top 10 percent law. *Social Science Quarterly*, 89(4), 831-845.

Nora, A. (2004). The role of habitus and cultural capital in choosing a college, transitioning from high school to higher education, and persisting in college among minority and nonminority students. *Journal of Hispanic Higher Education*, 3(2), 180-208.

Nora, A., & Cabrera, A.F. (1996). The role of perceptions of prejudice and discrimination on the adjustment of minority students to college. *Journal of Higher Education*, 67(2), 119-148.

Nunez, A. (2011). Counterspaces and connections in college transitions: First-generation Latino students' perspectives on Chicano Studies. *Journal of College Student Development*, 52(6), 639-655.

- Nunez, A., & Kim, D. (2012). Building a multicontextual model of Latino college enrollment: Student, school and state-level effects. *The Review of Higher Education*, 35(2), 237-263.
- Ostrove, J., & Long, S. (2007). Social class and belonging: Implications for college adjustment. *The Review of Higher Education*, 30(4), 363-389.
- Padilla, R.V., Trevino, J., Gonzalez, K., & Trevino, J. (1997). Developing local models of minority student success in college. *Journal of College Student Development*, 38(2), 125-135.
- Park, J.J., & Denson, N. (2009). Attitudes and advocacy: Understanding faulty views on racial/ethnic diversity. *The Journal of Higher Education*, 80(4), 415-438.
- Pascarella, E.T., & Terenzini, P.T. (1991). *How college affects students*. San Francisco, CA: Jossey-Bass.
- Pascarella, E.T., & Terenzini, P.T. (1998). Studing college students in the 21st century: Meeting new challenges. *The Review of Higher Education*, 21(2), 151-165.
- Pascarella, E.T., & Terenzini, P.T. (2005). *How college affects students: Volume 2: A third decade of research*, San Francisco, CA: Jossey-Bass.
- Patton, M. (Ed.) (1990). Qualitative interviewing. In *Qualitative Evaluation and Research Methods (2nd ed.)* (pp. 277-368). Newbury Park, CA: Sage.

- Perez, W., & Padilla, A. (2000). Cultural orientation across three generations of Hispanic adolescents. *Hispanic Journal of Behavioral Sciences*, 22(3), 390-398.
- Perna, L.W. (2000). Differences in the decision to attend college among African-Americans, Hispanics, and Whites. *The Journal of Higher Education*, 71(2), 117-141.
- Perna, L.W. (2003). The private benefits of higher education: An examination of the earnings premium. *Research in Higher Education*, 44(4), 451-472.
- Perna, L.W., & Titus, M.A. (2005). The relationship between parental involvement as social capital and college enrollment: An examination of racial/ethnic group differences. *The Journal of Higher Education*, 76(5), 485-518.
- Phelan, P., Yu, H., & Davidson, H. (1994). Navigating the psychosocial pressures of adolescence: The voices and experiences of high school youth. *American Educational Research Journal*, 31(2), 415-447.
- Ream, R. (2005). Toward understanding how social capital mediates the impact of mobility on Mexican American achievement. *Social Forces*, 84(1), 201-224.
- Redden, E. (2008, October 16). "Portrait" of Latino freshmen. *Inside Higher Ed*. Retrieved October 16, 2008 from <http://www.insiderhighered.com/layout/set/print/news/2008/10/16/latino>.

- Reason, R.D. (2003). Student variables that predict retention: Recent research and new developments. *NASPA Journal*, 40(4), 172-191.
- Rivas-Drake, D., & Mooney, M. (2009). Neither colorblind nor oppositional: Perceived minority status and trajectories of academic adjustment among Latinos in elite higher education. *Developmental Psychology*, 45(3), 642-651.
- Rodriguez, A., Guido-DiBrito, F., Torres, V., & Talbot, D. (2000). Latina college students: Issues and challenges for the 21st century. *NASPA Journal*, 37(3), 511-527.
- Rudenstine, N.L. (2001). The proper consideration of race in higher education. *The Journal of Blacks in Higher Education*, 33(Autumn), 114-117.
- Saunders, M., & Serna, I. (2004) Making college happen: The college experiences of first-generation Latino students. *Journal of Hispanic Higher Education* 3(2), 146-163.
- Schmidt, P. (2003). Academe's Hispanic future. *The Chronicle of Higher Education*, 50(14), A8-A12.
- Schwandt, T.A. (2001). *Dictionary of qualitative inquiry (2nd ed.)*. Thousand Oaks, CA: Sage Publications.
- So, A. (1987). High-achieving disadvantaged students: A study of low SES Hispanic language minority youth. *Urban Education*, 22(1), 19-35.
- Society for Mexican American Engineers and Scientists [MAES]. (2012). *MAES K-12 Outreach*. Houston, TX: MAES. Retrieved on March 4, 2012 from

<http://www.maes-natl.org/index.php?module=ContentExpress&func=display&btitle=CE&mid=&ceid=16>.

Spatz, C. (2005). *Basic statistics: Tales of distribution (8th ed.)*. Belmont, CA: Wadsworth Thomson Learning.

St. John, E.P. (2000). The impact of student aid on recruitment and retention: What the research indicates. *New Directions for Student Services*, 89, 61-75.

Stampen, J.O., & Fenski, R.H. (1988). The impact of financial aid on ethnic minorities. *Review of Higher Education*, 11(4), 337-353.

Strauss, L.C., & Volkwein, J.F. (2004). Predictors of student commitment at two-year and four-year institutions. *The Journal of Higher Education*, 75(2), 203-227.

Swail, W.S., Redd, K.E., & Perna, L.W. (2003). Retaining minority students in higher education: A framework for success. *ASHE-ERIC Higher Education Report*, 30(2). San Francisco, CA: Jossey-Bass.

Thayer, P.B. (2000). *Retention of students from first generation and low income backgrounds*. Washington, D.C.: Opportunity Outlook, Council for Opportunity in Education.

Tierney, W.G., & Venegas, K.M. (2009). Finding money on the table: Information, financial aid, and access to college. *The Journal of Higher Education*, 80(4), 363-388.

- Tinto, V. (2002a). *Establishing conditions for student success*. 11th Annual Conference of the European Access Network, June 19, 2002. Prado, Italy: Monash University.
- Tinto, V. (2002b). *Taking student retention seriously: Rethinking the first year of college*. Annual Meeting. American Association of Collegiate Registrars and Admission Officers, April 15, 2002. Minneapolis, MN.
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention*, 8, 1-19.
- Torres, V. (1999). Validation of a bicultural orientation model for Hispanic college students. *Journal of College Student Development*, 40(3), 285-298.
- Torres, V. (2003a). Influences on ethnic identity development of Latino college students in the first two years of college. *Journal of College Student Development*, 44(4), 532-547.
- Torres, V. (2003b). Mi casa is not exactly like your house: A window onto the experience of Latino students. *About Campus*, 8(2), 2-7.
- Torres, V. (2004a). Familial influences on the identity development of Latino first-year students. *Journal of College Student Development*, 45(4), 457-469.
- Torres, V. (2004b). The diversity among us: Puerto Ricans, Cuban Americans, Caribbean Americans, and Central and South Americans. *New Directions for Student Services*, 105(Spring), 5-16.

- Torres, V., & Baxter-Magolda, M. (2004). Reconstructing Latino identity: The influence of cognitive development on the ethnic identity process of Latino students. *Journal of College Student Development, 45*(3), 333-357.
- Torres, V., & Hernandez, E. (2007). The influence of ethnic identity on self-authorship: A longitudinal study of Latino/a college students. *Journal of College Student Development, 48*(5), 558-573.
- Torres, V., Howard-Hamilton, M.F., & Cooper, D.L. (2003). Identity development of diverse populations: Implications for teaching and administration in higher education. *ASHE-ERIC Higher Education Report, 29*(6). Washington, D.C.: ERIC Clearinghouse on Higher Education.
- Torres, V., Jones, S.R., & Renn, K.A. (2009). Identity development theories in student affairs: Origins, current status, and new approaches. *Journal of College Student Development, 50*(6), 577-596.
- Torres, V., & Phelps, R.E. (1997). Hispanic American acculturation and ethnic identity: A bi-cultural model. *College Student Affairs Journal, 17*(1), 53-68.
- Torres, V., Winston, R., & Cooper, D. (2003). Hispanic American students' cultural orientation: Does geographic location, institutional type, or level of stress have an effect? *NASPA Journal, 40*(2), 153-172.
- United States (U.S.) Census Bureau [Census] (2003). The Hispanic population in the United States: March 2002. *U.S. Census Bureau News*.

Washington, D.C.: U.S. Department of Commerce. Retrieved November 15, 2008 from <http://www.census.gov>.

U.S. Census Bureau [Census] (2008a). U.S. Hispanic population surpasses 45 million: Now 15 percent of total. *U.S. Census Bureau News*.

Washington, D.C.: U.S. Department of Commerce. Retrieved November 16, 2008 from [http://www.census.gov/Press-](http://www.census.gov/Press-Release/www/releases/archives/population/011910.html)

[Release/www/releases/archives/population/011910.html](http://www.census.gov/Press-Release/www/releases/archives/population/011910.html).

U.S. Census Bureau [Census] (2008b). Hispanic heritage month 2008: Sept. 15 -- Oct. 15. *U.S. Census Bureau News*. Washington, D.C.: U.S. Department of Commerce. Retrieved November 16, 2008 from <http://www.census.gov>.

U.S. Census Bureau [Census]. (2009). Census bureau releases data showing relationship between education and earnings. *U.S. Census Bureau News*. Washington, D.C.: U.S. Department of Commerce. Retrieved August 13, 2009 from [http://www.census.gov/Press-](http://www.census.gov/Press-Release/www/releases/archives/education/103618.html)
[Release/www/releases/archives/education/103618.html](http://www.census.gov/Press-Release/www/releases/archives/education/103618.html).

U.S. News & World Report. (2009). *Best Colleges Specialty Rankings: Best Undergraduate Engineering Programs*. Retrieved on September 22, 2009 from [http://colleges.usnews.rankingsandreviews.com/best-](http://colleges.usnews.rankingsandreviews.com/best-colleges/spec-doct-engineering)
[colleges/spec-doct-engineering](http://colleges.usnews.rankingsandreviews.com/best-colleges/spec-doct-engineering).

Vasquez, M.J.T. (1997). Confronting barriers to the participation of Mexican American women in higher education. In A. Darder, R.D. Torres, & H.

Gutierrez (Eds.), *Latinos and education: A critical reader* (pp. 454-467).

New York, NY: Routledge.

Zurita, M. (2007). Stopping out and persisting: Experiences of Latino undergraduates. In A. Seidman (Ed.), *Minority student retention: The best of the Journal of College Student Retention: Research, theory & practice* (pp. 123-146). Amityville, NY: Baywood.

APPENDIX A

PARTICIPANT RECRUITMENT E-MAIL

My name is Bari Brookins and I am working on my dissertation for my PhD in Higher Education Administration at Texas A&M University. My research centers on high-achieving undergraduate Hispanic students who are majoring in engineering. I am looking for students who would be interested in participating in my research. Qualifying students must be undergraduate students from either Texas A&M University or the University of Texas at Austin who self-identify as Hispanic and who have achieved at least a junior level classification with a minimum 3.0 GPR.

Participation in my study would entail a one-time interview that will last approximately 90 minutes. The interview would be confidential and names will not be attached to any comments or information you disclose. Participants will be asked to furnish a transcript (either official or unofficial) to verify classification status and GPR. Transcripts will be used for verification purposes only and will not be collected.

If you are interested in participating in my research, or can refer me to others who might be interested, please contact me via e-mail at bari@tamu.edu.

I look forward to hearing from you.

Bari Brookins, M.A.
PhD Candidate
Texas A&M University
bari@tamu.edu
(979) 458-0693

APPENDIX B

CONSENT FORM

Success Factors Among High-Achieving Undergraduate Hispanic Students Majoring in Engineering at Major Research Institutions

Introduction

The purpose of this form is to provide you information that may affect your decision as to whether or not to participate in this research study. If you decide to participate in this study, this form will also be used to record your consent.

You have been asked to participate in a research project studying the perceptions of high-achieving Hispanic students majoring in engineering regarding their academic success. The purpose of this study is to attempt to identify the factors which Hispanic engineering students feel contributed to their academic success. You were selected to be a possible participant because you self-identify as Hispanic, are an engineering major, have a minimum 3.0 GPR and have reached junior classification or higher.

What will I be asked to do?

If you agree to participate in this study, you will be asked to provide proof of your GPR and classification in the form of a transcript (which will be returned to you) and participate in a one-time interview. This study will take approximately 90 minutes. Your participation will be audio recorded.

What are the risks involved in this study?

The risks associated in this study are minimal, and are not greater than risks ordinarily encountered in daily life.

What are the possible benefits of this study?

You will receive no direct benefit from participating in this study; however, it is possible that findings may emerge that can be applied to other students in similar educational situations with the hope of enhancing their academic success.

Do I have to participate?

No. Your participation is voluntary. You may decide not to participate or to withdraw at any time without your current or future relations with Texas A&M University and/or the University of Texas/Florida State University/the University of Florida/ the University of California at Berkeley/the University of California at Los Angeles (if applicable) being affected.

Who will know about my participation in this research study?

This study is confidential. You will choose a pseudonym under which you will be interviewed and you will be identified solely by this pseudonym in the interview itself and any and all interview transcripts, quotes or references pertaining to you in my dissertation and/or any other publication resulting from this study. The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely and only Bari L. Brookins and Fred A. Bonner, II, PhD will have access to the records.

If you choose to participate in this study, you will be audio recorded. Any audio recordings will be stored securely and only Bari L. Brookins and Fred A. Bonner, II, PhD, will have access to the recordings. Any recordings will be kept for 3 years and then erased.

Whom do I contact with questions about the research?

If you have questions regarding this study, you may contact Bari L. Brookins at 979-458-0693 or at bari@tamu.edu.

Whom do I contact about my rights as a research participant?

This research study has been reviewed by the Human Subjects' Protection Program and/or the Institutional Review Board at Texas A&M University. For research-related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or irb@tamu.edu.

Signature

Please be sure you have read the above information, asked questions and received answers to your satisfaction. You will be given a copy of the consent form for your records. By signing this document, you consent to participate in this study.

Signature of Participant: _____ **Date:** _____

Printed Name: _____

Signature of Person Obtaining Consent: _____ **Date:** _____

Printed Name: _____

APPENDIX C

PARTICIPANT INFORMATION QUESTIONNAIRE

Participant: _____

Institution: _____

Current Major: _____

Classification: _____

Grade Point Ratio: _____

Country/Countries of Hispanic Heritage/Origin: _____

Proof of:	Classification	_____	GPR	_____
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Hometown: _____

Population: _____

High School: _____

Size of High School: _____

College Preparation Classes taken during High School (Dual-Credit/AP/Pre-AP/etc.) and year taken (Freshman, Sophomore, Junior, Senior):

APPENDIX D

CONSENT PROTOCOL

Good (evening/morning/afternoon). I am Bari Brookins, an Assistant Lecturer in the Student Learning Center as well as a PhD Candidate in the department of Educational Administration and Human Resource Development at Texas A&M University.

The purpose of this interview is to elicit from you your opinions and experiences regarding your academic experiences. The interview is very casual and will flow more like a conversation than a structured question and answer process. The interview will be allowed to unfold as a casual conversation. During our conversation you may notice me write something down. This will serve as a reminder for me of a topic I want to be sure and ask you about. I also have a list of topics that I have gathered from the research that I am interested in your feedback on. Most of these topics will probably be covered in our conversation. If one of them isn't, however, I may ask you about it directly.

You should feel comfortable to comment on any matter. If you do not want to comment on a matter or if you are uncomfortable discussing a particular topic or topics, all you need to do is indicate this and your wishes will be respected. Your responses will remain anonymous and you will be addressed by the pseudonym you have chosen. No specific reference will be made to you by name and all future references will refer to you by your pseudonym.

If you would take a moment to complete the information questionnaire and the informed consent form, then we can begin. I anticipate that our conversation will last about 90 minutes and I appreciate your willingness to participate in my research. Do you have any questions?

APPENDIX E

INTERVIEW TOPICS

High School

Family

Importance

Role

Expectations

College

Why/when choice of institution/major

Enrollment status

Adjustment Issues

Academic Preparation

Campus Involvement & Engagement

Stereotyping/Discrimination

Faculty Interaction

Personal growth & development

Financial Aid

Advice for others

APPENDIX F

CONCEPTUALLY CLUSTERED MATRIX: THEME ONE

Participant	Versatility		
	Undergraduate Experience	Self	People
Andres	<p>I had heard “college” in movies and stuff like that, but I didn’t have any idea of what college was really like that much....I had no clue what I was going to do in my future....I knew I could do anything....it was all in my head, you gotta go to college, gotta go to college....I had it in my head – to gotta go to college – but I wasn’t thinking about it – I thought it was just gonna happen one day. (INT-Andres.4/1/11.pp6-7)</p>	<p>I’m thinking about law school or some type of engineering, but technical reason. But law school is my main goal for patent law. Once again, I don’t know that much about it – I’ve researched it, but there’s only so much you can research after that, and I still have a lot of time, so I’ve already taken like a practice LSAT so I’ve been kind of doing it. But I kinda wanna do law school, but I’m not so sure that much. (INT-Andres.4/1/11.p10)</p>	<p>It was less because, cause for me, like I make friends and I make best friends, but it’s hard for me to make best friends after that. So my best friends moved and are still in my hometown. And I came here and didn’t really know people, and like I didn’t know anybody, and I don’t like making friends that much. I mean, I will, but I have my best friends, you know, they’re my best friends for life, so it was nice because I had a classmate from high school – she came over here and we hanged out a lot, so that was good. She was the reason why I went to a lot of places. But I had more of a social life during high school, and also engineering and everything kinda killed it. (INT-Andres.4/1/11.p11)</p>
	<p>A&M wasn’t even on my mind, it wasn’t whatsoever – I kinda hated A&M, because I was all UT. And then I got accepted to UT, but they didn’t give me enough money. So then A&M called me and I got accepted, so I guess that was my second choice because I knew what ere the rankings for college, and I knew like I could go to Baylor, it was just too expensive, and I could go to Rice, it was just too expensive, so A&M was the best package, so that’s why I can to A&M....I didn’t start thinking about &AM until a month before school ended. I never been to campus or anything, I didn’t know anything about A&M. (INT-Andres.4/1/11.p8)</p>	<p>...I know what’s important. I know what must be...like I have goals, I guess you can say, that’s the best thing. I know I have goals. That’s the thing – I have a goal, and if I have a goal I’m gonna do it...[before] I had goals, but they weren’t really that strong. Now it’s like I must this, I must do it....You can’t say like my morals changed, because it’s like the same. I know what’s right and what’s wrong, so that’s always been there....mostly independent now. (INT-Andres.4/1/11.pp30-31)</p>	

Participant	Versatility		
	Undergraduate Experience	Self	People
Andres			<p>We were together [Roommate] – he wasn't like a friend-friend, but we respected each other a lot. I have ever since, all my roommates....it's just respect, you know. It has never...I mean I know how to talk to people and there's never been any issue whatsoever, so it's good. I know how to deal with somebody. I've dealt with people. I used to be a waiter, so I know how to deal with people. I guess I've been lucky to have good roommates. (INT-Andres.4/1/11.p14)</p>

Participant	Versatility		
	Undergraduate Experience	Self	People
Crystal	<p>It was kind random. Just like many other students, I never knew where I wanted to go or what I wanted to do. But I had friends that were coming over here, and I guess...like I say things just happen for a reason, and I say "okay, try to go with the flow and like see where it goes." But, yeah, I have friends applying to like A&M so I was like I don't care, I guess I'll apply. And I did and like I didn't really apply to any other university. (INT-Crystal.4/1/11.pp5-6)</p>	<p>...my mom mentioned, "Oh, Well, you can get a job over here, and come back"....But I think she realizes that I may not do that. Because as an engineer, you have more opportunities elsewhere than down in the Valley. So I think even though she tells me that, I know that she knows that I'll probably end up somewhere else.... (INT-Crystal.4/1/11.p27)</p>	<p>...like the Valley, like mostly everybody is Hispanic over there, and over here, not that much. (Laughter) So it's very different seeing all the different kind of races and everything all together. I wasn't really used to seeing that much. So at some point, at the beginning, I did feel kind of out of place because I felt like...it was the very first time that I had been in a big area where there were a lot of people that weren't Hispanic. And I mean I got used to it...I mean because I try to be out going, like I'll talk to anybody, so that transition wasn't hard to used to being around other people who aren't Hispanic. (INT-Crystal.4/1/11.p11)</p>
	<p>It just kinda happened to me. Yeah, because well, math and science are my strongest subjects, and so it would make sense for me to pick engineering. But I don't know, like I would say I like to do a lot of things. And I think I would be interested in anything that I would do, like no matter what it was or whatever. But I don't know, like it just kinda happened, because I had...like the same friends that I mentioned were gonna come here, they were gonna try to like...they were coming in with engineering. And I didn't knew it was like difficult or how challenging it could be or nothing, you know, just like oh, it sounds cool, so like yeah, I'll do it. I'll try it. (INT-Crystal.4/1/11.p7)</p>	<p>...my mom always used to tell me that I was always independent....I think I've embraced that more here....I've really learned to like just do things with what I have, you know....I guess you say manage not only my things, but other people's, I don't know, problems or things I need to get done....I know that overall, since I've been here, I've learned to like...because I used to be more hesitant or kind of like...I would hold back to do certain things. And I think I find myself just stepping out and doing them instead of holding back and being like indecisive whether I should or shouldn't. (INT-Crystal.4/1/11.p.34-35)</p>	

Participant	Versatility		
	Undergraduate Experience	Self	People
Itzeth	<p>I had no idea about the universities in Texas....And because being a student from Mexico, the district, like the teachers and counselors didn't really think that we could do better than just staying in the Valley. And do it was just by chance, I guess. I talked to a recruiter that was going to La Joya....and the recruiter....started just asking us if we had applied for college and where we had applied. And he was the one that introduced me to A&M really. And I applied, and I got in. It wasn't because I wanted to be <u>here</u>. I just wanted to go to a good college, and I started asking my teachers which college they would recommend, and which college they thought was good. And A&M and UT were in the top from all of them. (INT-Itzeth.4/3/11.p8)</p>	<p>I'm not sure. I've been looking at getting an MBA, because as my minor, I'm getting a business minor here at A&M. And I found I like it, I like business as well....that's what I just realized a few days ago, actually. I was like well, that's what I wanted to do when I was little. And maybe, I just wanna have both, Now that I'm almost gonna have my bachelors in computer science. I also wanna...I don't know, I just think more open, it can be open, if you have more stuff to do. You just have more opportunities and more ways to go if, when I'm working, I realize that I don't really wanna do that, I can have a backup plan. (INT-Itzeth.4/3/11.p20)</p>	<p>La Joya is a majority Hispanic high school. There was probably like one white person and one African American, and that was it – the rest of us were Hispanics. So...I would hear someone speaking Spanish, and I would turn around to see if I knew them....And as I started getting to know more people, I realized I wasn't alone – there were more people that shared with me my culture and my beliefs....I was just scared that I wasn't gonna find people that I could communicate with. (INT-Itzeth.4/3/11.pp.11-12)</p>
		<p>I've also learned to just interact with different kinds of people and to respect their beliefs, mainly. To interact with them and just try to be mindful of what I say, because we're not all the same....just be more culturally aware. (INT-Itzeth.4/3/11.pp35-36)</p>	<p>I have friends from like diverse cultures, which is something I like, something that...I love learning about cultures. And just talking to these people like when we met and we started working together, I was just asking them so many questions once I got to know them a little....I like...having friends from different areas, I guess, that I can share different things with them. (INT-Itzeth.4/3/11.p22)</p>

Participant	Versatility		
	Undergraduate Experience	Self	People
Joey	<p>...I didn't settle down on a major until the day I applied, until the day I sent out my application. And it was just kind of blind luck that I got one that I liked. (INT-Joey.7/29/10.p7)</p>	<p>And then, I'm hoping to discover throughout my graduate work whether I want to stay for academic or whether I want to go work at a research lab. I'm expecting to do some internships at research labs throughout the country. I already have a contact in Sandia Labs that's ready to hire me once I start my PhD. And so I'm just going to see if I can just compare between working in a government lab or a private industry lab or academia. So, those are the three options for now. (INT-Joey.7/29/10.p18)</p>	<p>...within MAES, its' very strongly Hispanic, its' very strongly Mexican American especially. But I do have a very large group of friends outside of MAES. And I would say the two groups are pretty equally split. So maybe half of my friends are largely Hispanic and the other half are about the distribution of A&M. So largely White and some other minorities mixed in...A sense of humor is pretty important to me. As long as someone knows how to have fun and doesn't take stuff too seriously, as long as somebody can relax and be a good friend, that's pretty much all I need. (INT-Joey.7/29/10.pp38-39)</p>
	<p>It was great. It was, compared to high school, it was pretty much everything that I could hope for. Now the first thing I did is I emailed some of my old teachers and I said "Remember how I didn't really like high school?" Well it turns out that College is for me." (INT-Joey.7/29/10.p8)</p>	<p>I'm probably a lot more mature than I was starting out. I may not seem it all the time, but I really am. And especially the experience I had with MAES and especially being President of MAES. I dealt with a lot, a lot of people. I probably dealt with hundreds of people, with professors, with other organizations, with administrators, lots of businesses. I had to talk with a lot of business representatives all the time. And I just had to become a professional person very quickly. And I think I picked up on it pretty well, and I think I can maintain it pretty well. So I've become more mature, more professional, and I've just picked up on a lot of skills that I really didn't have before. (INT-Joey.7/29/10.p40)</p>	

Participant	Versatility		
	Undergraduate Experience	Self	People
Julia	<p>...I started out as a math major, because I enjoyed math and was like I should study that. And then it wasn't until maybe the summer after I graduated high school that my uncle is a civil engineer in Miami, and I kind of like shadowed him for a few days. And I was like I think this is more what I wanted to do than math, so I came here, and after like the first two semester, I changed to engineering....By the time I had entered A&M I already knew that I wanted to be in engineering. It was just a matter of waiting until the college wasn't like full so that I could transfer in. (INT-Julia.7/21/10.pp3-4)</p>	<p>....at first, I wasn't really sure. And then for a while, I was like I don't know if I wanna do it immediately after school, or come back and do it later. But the research, or at least working with the other grad students and hearing all their stories about how some of them like went immediately after school, others waited. Most of the ones I've talked to waited, and they're like "it's so hard – don't do it"....I guess when they graduated, they found jobs, and then they decided they wanted a masters. And then they had to give up all the money that they had, and they couldn't live in like a normal house, they had to live in a little apartment. They also said that it's harder for them because like up until now, all we've been doing is just studying and going to school, and that's all we've known. And so taking a break from that, it's harder to come back and get into like school mentality. (INT-Julia.7/21/10.pp7-8)</p>	<p>...most of my friends [in high school] were just like different ethnicities. And so when I came here, I guess it was more of a shock that there...not that there weren't as many, but the fact that they were exclusive....I feel like I haven't been able to connect with other people or ethnicities....in high school, a lot of my friends were like Asian American, Indian, and so I felt that I was learning a lot, not only about all the cultures, but maybe other beliefs. I'm like well, you know, that's a different way of seeing things that I never thought of before. And so I felt like I was losing that a lot more than anything....My main concern was just hanging out with people who were just different cultures...which is what I've been like growing up with all my life. (INT-Julia.7/21/10.pp25-26)</p>
		<p>I've always hoped just to have a balance of maybe not finding like my dream job or a job that I love, just because I've come to think that that's kind of unrealistic. And so a job that maybe I'd enjoy or that I can live with, and also that pays well. (INT-Julia.7/21/10.p30)</p>	

Participant	Versatility		
	Undergraduate Experience	Self	People
Julia		<p>I used to be really shy in high school. And I was like I wouldn't go out – I'd do my homework, go to bed at 10, that's it. And I guess just living with a bunch of other kids my age helped that because I was able to be like, oh, well, you know, I don't have to go to bed – I can just talk with other people. And I think it made me more sensitive to people who were also like me, that were really shy. Because when I first came here, I was still really quiet. And then, people who kind of like reached out to me – even though I wouldn't talk to them, they'd still invite me to activities and stuff – I was really thankful for people like that. And so that kinda made me want to get involved with hall council....that way I could just reach out to freshman, especially those freshman who are kind of like me but so afraid to talk to new people. And so, yeah, it's also made me sensitive to people who I guess are just kind of awkward for whatever reason or who like other people are like "that person is weird." Like give them another chance. (INT-Julia.7/21/10.p23)</p>	

Participant	Versatility		
	Undergraduate Experience	Self	People
Luis	<p>...they told me, before we accept you into the College of Engineering, I had to take, first, a Math 150, which is pre-calculus for engineers. And, if I remember correctly, that, it was probably still the biggest class I've ever had here at A&M....it was a weed out course because, I mean, engineering is really competitive....So they purposely made this entry course difficult because other people who had already gotten accepted initially into the College of Engineering, straight from high school, they're already intelligent. But the rest of us that didn't achieve the level of mathematical competency, who had to make it up in pre-calculus, they wanted to weed out the ones who actually weren't serious....I mean, it was pre-calculus, that's not hard stuff. But he made it difficult. He made it very difficult. (INT-Luis.7/26/10.pp7-8)</p>	<p>...for graduate school, I've already told them that I'm thinking of maybe expanding my bounds. Maybe, if I can, go somewhere else out of state to kind of get that experience....In the beginning they [parents] told me don't do it. And especially since my younger brother is going to enter college in a year. He's in his senior year of high school. And my parents want me to help him out. Like, they still want me to be at A&M to help him out. Since I have my double-major and I'm staying here for five years, my last year at A&M will be his first year in college. So they're kind of pushing him to come to A&M as well....the thing is that they want me to kind of help out my brother and the family with the cost of it. They're kind of pushing me a little bit to go into industry, especially since I told them that pursuing, going from masters to PhD directly, which is what I'm aiming at, and getting my masters along the way, I told them it would take about six years for that and they looked at me and thought, "Six years. We're going to need your help a little sooner than that." But I've been telling them it's something that I want to do and that I'm going to do it. You know, that I'm going to get a PhD. (INT-Luis.7/26/10.pp12-15)</p>	<p>I have so many different kinds of friends. I mean, like, a lot of my friends are international students cause, just because, it's easier for me to relate to them because I've never lived in a single place for a longtime. I've moved around a lot so I can almost consider myself international since I've been everywhere, you know....a lot of good friends from all over the world. And I also have a lot of white friends, basically, it just crosses all ethnic boundaries. Like I don't have just a single group of, just, friends. You know, it's everywhere. (INT-Luis.7/26/10.pp39-40)</p>

Participant	Versatility		
	Undergraduate Experience	Self	People
Luis		<p>I've gotten more of a sense of who I am while in college because in high school, basically, it's like, you're just the Spanish guy pretty much. You're the Hispanic guy. Like, I was kinda like a class clown in high school pretty much. It was just kind of how I did things, pretty much. I was one of the only people with facial hair in high school, which was really annoying. I was kinda like the weird guy so it was hard getting self-esteem. It was hard feeling like you're a person in high school. Here I've been able to grow myself. Like stretch my boundaries. I feel like I'm more of a whole person. Having my own routine, feeling like a guy, a man, you know? Feeling like have strength in my own self. My, just self-esteem has really increased since I came to A&M. (INT-Luis.7/26/10.pp37-38)</p>	
Madeline	<p>UT Business School didn't accept me because they only accept the top 3% automatically, and they didn't select me. And they told me I could do a liberal arts major, and that's not what I wanted to do. And so in March, A&M had accepted me to their business school, and so I...instead I declined Texas and accepted A&M's offer without having visited A&M. I didn't even what to apply here – I just applied for backup. (INT-Madeline.7/23/10.p2)</p>	<p>...and if I get my masters, I should be okay....I don't know if I wanna stay here or not – I haven't planned that out yet. (INT-Madeline.7/23/10.pp24-25)</p>	<p>...whereas I've experienced here where people just kind of...they're friends with you, but they won't include you in their group of friends....it was hard because I'm used to people just accepting you into their group and in to your life, and it's just how friends work. And I get here, and people are very like...they have their groups of friends and they don't mix together, I guess (INT-Madeline.7/23/10.p27)</p>

Participant	Versatility		
	Undergraduate Experience	Self	People
Madeline		<p>...I thought I was independent when I got here. And I learned to be dependent on other people and have to rely on people....since my parents' attention was on my brother, I kinda grew apart from people, and I was just really to myself, and I really didn't get close to people. And I didn't like help – I just wanted to be by myself. And coming to college, I realized that it's okay to ask for help. And it took a lot of patience and stuff for that to happen. And I'm just a lot more stress-free and less anxious than I used to be, because as long as you try your best, you can't really do much else in that. And I try to make it to where I do everything that I can, and I pretty much know the point where I can't do anything else, and that's when I stop. And even if I get not such a good grade, I feel like I did everything in my power to do well, and I'm a lot nicer. (INT-Madeline.7/23/10.p20)</p>	
	<p>My dad was industrial engineering, and he's a professor, so he always told me that I should be in engineering. But in high school, I switched around a lot....And then I just decided that industrial engineering is a good mix of industry and business and engineering, and I kinda just wanted a challenge, I guess, and I got a challenge. (INT-Madeline.7/23/10.p4)</p>		

APPENDIX G

CONCEPTUALLY CLUSTERED MATRIX: THEME TWO

Participant	Individuality	
	Campus Engagement	Encouragement
Andres	<p>...it was required by Moser for engineering [Living Learning Community].... That didn't really help whatsoever.... For Moser, I guess I never got emails or anything – or maybe I did get emails, but I was like why go? So for me I'm saying, maybe of course it helps other people, but for me it never helped me, and I never went to any of that stuff. So it was just like living in a room independently of anybody else – nobody can make you do anything. So it was just, like, living. (INT-Andres.4/1/11.pp13-14)</p>	<p>I can't say study more – I mean you could say study more, but that's not gonna help for college that much. It's just getting to college is the only thing – I don't care – yeah, that's what I tell my friends sometimes. Because they just say . . . yeah, that's the best thing . . . they say study a lot – I know I'm gonna study a lot, but the thing is getting to college. That has to be to get into college, it has to be it, you know, getting into college, there's no other. And what are you gonna do, work here? There's nothing here – that's the best is getting into college, like the best advice I have to give. (INT-Andres.4/1/11.p33)</p>
	<p>I'm in some societies – Tau Beta Pi, the engineering honor society. And I'm in the archery team, and I do Big Event every year. And I was in SHPE – not anymore....I just thought Tau Beta Pi was more benefit. I try to do something new every semester. Cause if I do SHPE, Tau Beta Pi, they're gonna want me to go every time and then the next thing you know it's gonna build up. Just having been there once, it's kind of like an experience, so next year I'm still gonna be in Tau Beta Ph but I might join the Electrical Engineering Honor Society, so that's gonna be next semester. So every semester I'm trying to do something new....I'm just trying to get something that benefits me the most, so that's what I'm trying to do. (INT-Andres.4/1/11.pp18-19)</p>	
	<p>[archery team] Actually it's not that hard – you just have to like be kinda good, and you have to pay money – there's a lot of people in it....I've taken almost a year-and-a-half of archery.... I mean I was kinda good at it, and that was something, and also like the quietness, you know, they just shoot, and then like you know you expect something. And every time you try to get better, and that's it. (INT-Andres.4/1/11.p19)</p>	

Participant	Individuality	
	Campus Engagement	Encouragement
Crystal	<p>I was on campus....On south side in Moser [part of the living/learning community]....It was alright, I mean there wasn't . . . I'm trying to think, I'm trying to remember exactly what we did for that. Because I know we had the speakers once in a while that we had to attend, and some of those were really helpful. Cause I kinda think about them and go "Wow!" you know? [and] Yeah, I don't specifically remember which ones they were [not as helpful], but I do remember having that impression that I could be doing something better than just, you know, being bored....[Overall] it was nice. I mean my roommate was chosen randomly.... We say it's a blessing, because I'm still rooming with her, you know, like we became good friends. So that itself I think is very important, what kind of experience you have living on campus. (INT-Crystal.4/1/11.pp12-13)</p>	<p>... never give up, because like yeah, I could probably tell them like you have to study hard, you have to do this and then that, you know, but all that itself is a learning process like once you go to that college or university you wanna go to. Because like my experience, you know, when I was in high school, yeah, I heard all these things that I knew. In a way, yeah, I was meant to be prepared, but you don't really start learning like how to manage everything or how to do things or how to go about it until you actually like you're put in that position....And things happen all the time, like good or bad, you know. So that's why I say like never give up. Because no matter what you decide to do, or where, you know, like that's the most important thing in order to get to reach that goal you want, you know? (INT-Crystal.4/1/11.pp34-35)</p>
	<p>I've been involved in a lot of stuff. SHPE is the one that I've been involved since freshman year. It's the longest membership that I've had here. Right now, I'm involved in the Society of Collegiate Scholars. I'm in ASME, and I'm also in this Materials Advantage Club. I play a lot of intramurals with SHPE too.... basketball, volleyball, and soccer going on....And I know we've also played flag football in the past for intramurals. And before, I also used to be part of Destino, which is like this Hispanic . . . how can I say it? I guess overall it's like this club where Hispanics can get together and talk about God or pray, and they have songs they sing and stuff like that....And I was also in the RSO – Regent Scholar Organization. And I was also in the American Red Cross for some point....And I also was in MMA, mixed martial arts and self-defense. And I think I'm missing something else – I just don't remember. I was in SWE, but then I like got out....because it conflicts with SHPE, and I feel more comfortable in SHPE. (INT-Crystal.4/1/11.pp16-17)</p>	<p>...what has pushed me to come this far, you know, is I would have to say that it's . . . my faith in God has helped me, my family, like the support from them and stuff. And I think like me being in sports as well, because I mean I never always played sports, but once I did, that's where I learned like endurance, you know, perseverance, you know, and all those things. (INT-Crystal.4/1/11.pp37-38)</p>

Participant	Individuality	
	Campus Engagement	Encouragement
Itzeth	<p>There are many things that I like [about living off campus], and other things that I don't like so much. But one of them is that I have a kitchen, and I didn't have a kitchen in the dorms. And I don't like frozen foods – I don't know why – I like cooking, so I make most of my meals. I have my own restroom, which at the dorms it was community bathrooms. I also think that I can get out of the university, I don't live in school. I mean when the day is over, even though I still have dozens of homework to do, I feel like I can get out – it feels just more like home....The dorms, even though I didn't want a roommate, at times I would feel really alone, yeah. I've always lived with my family, so I mean I didn't like eating on my own at home – I would wait for someone, usually my dad. I would always wait for him to have lunch or dinner. And just eating on my own, it was a hard thing for me to do. But since I was by myself, I didn't have the trouble of roommates like I've heard from other people. It was all girls, so even though there were some guys with my . . . the other girl was . . . you know, that I would see often, I still felt more like secured, I guess, yeah. (INT-Itzeth.4/3/11.pp13-14)</p>	<p>...not thinking that what they do in high school, it's not gonna affect their college careers, because if you don't take high school seriously, I mean first of all, you're not gonna have . . . you might not be in the top 10%, which is, you know, if you are, you're in in any of the universities anyway. But also just be prepared and not be scared of doing good or not being at home, because mainly in my culture, you know, like I said before, parents don't want you to leave. But if that's the case with their family, like I would encourage them to start talking to their parents like from then on, from sophomore and junior year....And I've actually told this to some students in La Joya – I've gone back a few times and talked to students, because my teacher invites me to go and talk to students. And so I tell them like you can go out of the Valley, like it's gonna be so much better – don't be scared of leaving your culture. I mean at least a semester, and you're gonna learn a lot of things. It's gonna change your life. So mainly that, like don't be scared of getting out of your comfort zone. And whatever you do right now, just know that it's gonna affect you later. (INT-Itzeth.4/3/11.p37)</p>
	<p>I am working at the Computer Science Help Desk – I started working there last summer....I like it – I get to know more people from the computer science department and interact with the professors, which I think is a great networking technique. Many professors now know me, and when I have class with them, I don't know, when something is wrong with their computer, they already know I work there, and that's we start making conversations. (INT-Itzeth.4/3/11.p17)</p>	

Participant	Individuality	
	Campus Engagement	Encouragement
Itzeth	<p>I am doing research – I started this semester. I'm working for the Sketch Recognition Lab....SRL lab....I'm working under Dr. Hammond, Dr. Tracy Hammond. We are working on a program, software for mechanical engineers where they can . . . for the introductory course where they can just draw their trusses and like do their homework problems. And that's what we're working on.... like it – it's something different. I wanted to get the opportunity to do some research because I wanted to know what it was all about. Professors always remark in class that it's really important for us to get some experience for if we wanna go to grad school. And I had the opportunity to get course credit for it as well, which was really good. It's something new that I'm learning about. I never thought I would work in something to do with recognition. I mean computer science, there's so much stuff....There's so many things that you can do, and there are many labs at the computer science department. They're just working on many different things. But I like working there – Dr. Hammond is a really nice person to work with. She thinks that we can do whatever we wanna do, we can do it, so she really encourages us to do things, go to a conference and participate and things, present our research to institutions and stuff like that. (INT-Itzeth.4/3/11.pp18-19)</p>	
	<p>....I did make good friends... but not in my classes – it was in the CoALS community, because I'm a Regent's Scholar, so we're supposed to be placed in a learning community. And my advisor for the CoALS community, she was really helpful. And I was placed in a group where, I don't know why, but a majority of us were Hispanic, so I realized I wasn't alone....We went to Mexico City my freshman year on Spring Break as a group with a trip with the program – it wasn't on our own, it was with the advisors. And that's how I met some of my other good friends. (INT-Itzeth.4/3/11.pp14-15)</p>	

Participant	Individuality	
	Campus Engagement	Encouragement
Itzeth	<p>I'm involved in MSC CAMAC....Committee for the Awareness of Mexican American Culture....We participate in events or we put up events around campus and around the community, just traditional events from the Hispanic culture, like Quinceanera, we celebrate Dia de los Muertos, Cinco de Mayo, and we put up events for the university. We also participate in community service, mainly in Bryan. And we put up a student conference which was this past weekend....It's called SCOLA, which is Student Conference on Latino Affairs. This year, we talk about Latinos in politics, which was a really interesting topic to learn....Yeah, it was really good – we had awesome speakers. And I've been involved in CAMAC for 2 years. (INT-Itzeth.4/3/11.pp15-16)</p>	
Joey	<p>I lived 2 years on campus and since then I've lived off. It was really great that you could get up and get to class in 5 minutes. Almost everything else about it sucked. It was, you don't have, I like to cook, and so you don't have a stove. That's a big problem. And so, there's less privacy, of course....but, being around a lot of other students in Engineering was actually pretty nice. I'm not the studying type, but I still like being in that environment. So, I liked it....There was a lot of study groups going on. Mosher has Study Lounges scattered throughout the building. And so every time you walk by you always see students studying. And it's not what you'd expect from a college, you always expect partying. But it really worked....I think the program I think it's called Engineering Living Learning Community (ELLC). It really does seem to work....I would meet up with them, not for studying. I'd meet up with them, go down and play pool, go to the movies. I would definitely socialize with the other students in Engineering.... (INT-Joey.7/29/10.pp22-23)</p>	<p>To me, I would say do exactly what you did in the future, because I like the way my life came out. And it was a lot of just turns of fate. A lot is of was, I'm sorry, turns of luck....My life came out as it did really by luck. And by a lot, a lot help from a lot, a lot of people....So, if I didn't do it the same way I did, I'm not sure what would have happened....I really don't want to picture it. My life would probably be terrible. But to somebody like me...who obviously doesn't have the same course of luck that I have, I would say get involved in an organization for no reason, just regard the value of college, especially Hispanic students, it's just go to high school, maybe not even that, and then just drop out, and leave, and go get a job. ...For a lot of them, College is not really an option....I would say, understand the value of a good education, become involved and be a good service person. Understand that to get something good in life you have to give back to society. (INT-Joey.7/29/10.pp48-50)</p>
	<p>MAES, it's called the Society of Mexican American Engineers and Scientists. I've been involved in it since I was a freshman. And I was President last year. That's the one I've dedicated all my time to....As far as extra-curriculars, that's where my time goes (INT-Joey.7/29/10.pp28-29)</p>	

Participant	Individuality	
	Campus Engagement	Encouragement
Joey	[MAES] it's my family away from home. So we go and have barbecues together, we play intramural sports together, we have parties together, the works. It's really like your large extended family. (INT-Joey.7/29/10.p36)	

Participant	Individuality	
	Campus Engagement	Encouragement
Julia	<p>It was never really bad for me. I think, actually I know, I owe it just to, like the dorm I lived in, the hall council was very active in like planning a bunch of events. And they always had like dorm dinner, and we'd always to go dinner together. And so I never really felt like by myself, and the only people I know are like the 5 kids who came with me to A&M....so I never really felt too, too lonely. It wasn't until maybe the end of freshman year that I realized that I build my social life only around these like group of people. And so I was like maybe I should start joining clubs or something. (INT-Julia.7/21/10.p18)</p>	<p>I think one of the I guess main points of the advice I would give her would be not to be close-minded about things. One of the reasons I was hesitant to come to A&M was just because it had a reputation for being like a not-to-minority-friendly school. Not that I was like ever afraid of like my life – just I guess they'd be a little more close-minded. So even though it's outside of your comfort zone to like go try country dancing or something like that, like never close yourself off from an opportunity like that. Because also, I feel like that's how I learned, or at least how I shaped a lot of my beliefs in college that I had kinda just like grown up with because my parents thought that....Another thing I would say – hmm, what else could I say? Like just also push yourself out of your comfort zone, just to meet people, and a lot of different people. And you know, even if I'm not part of like a certain minority, say like I don't know, the Asian American Students Club, it doesn't mean that they're closed off from people who aren't Asian – that I could go and meet people there. Or just other things like that....Definitely find people who are within your major and taking your same classes. Sign up for the same classes as them – maybe not all of them, because towards the end of the semester, you kinda get like sick of everyone – you're like ugh, I wanna hang out with someone new....Loosen up....I feel like I missed out on a lot of things in high school just because I was so focused on like I have to do really well on this test and the AP test, because otherwise my life is gonna be meaningless....And so I guess just finding a happy medium in between like going out with friends and having a social life – it's like memories to look back on. And also still working hard, so you do well on the SAT's and things that will pay you like scholarships in college. Because like when I came to college, it was then I realized that I didn't have to study that hard for all these tests. I mean I'm still glad that I did well, but the effort that I put in wasn't as important as I thought it was then, and I know how important it is now. (INT-Julia.7/21/10.pp36-38)</p>

Participant	Individuality	
	Campus Engagement	Encouragement
Julia	<p>Up until now, like I guess the dorm has just been my social life. Like I lived in an Honors dorm, and so it was just like filled with engineers, and so I was like oh, hey, you know, that guy lives in my dorm, and he's also in my thermo class or whatever.... I hope it doesn't change too much, because I think we bonded a lot last semester. And so two of the guys in our engineering cluster, they're also living in the same apartment complex I am, so I'm sure I'll be seeing them often, and then two of them aren't. But we all decided to sign up for the same classes next semester, so I'll be seeing them. As for people I knew in the dorm, that weren't engineering, I hope I can pass by there and just see them still, but if not I understand. (INT-Julia.7/21/10.p13)</p>	
	<p>...with the exception of my first semester in college, I've worked like 10-12 hours a week. Second semester freshman year, I worked at Poor Yorick's next to the library. And then since then, I've had different research internships. Sophomore year fall semester, I had one – it was industrial engineering – but it was so lonely, there were no other grad students, and it was just me and the professor. And I guess he really didn't know what to do with me, because he never gave me like a defined project, and so I didn't like it. And then spring semester sophomore year, I worked in the plasma engineering lab, like in the mechanical engineering department, and that was a lot more fun. I worked on a project that was more electrical-engineering-based. I just had to like design a few circuits and actually like built the circuit to help connect the power supply in the lab, and so that was really neat. And then this summer, I've been working with refrigeration systems, also in the mechanical engineering department. And that's what I plan on continuing that this fall. (INT-Julia.7/21/10.p6)</p>	

Participant	Individuality	
	Campus Engagement	Encouragement
Julia	<p>These past 2 years, I've been involved with Hall Council in the dorm I lived in. This year, I don't know what I'm gonna do because I moved to an apartment. But I would help with even planning, especially like with Gig 'Em Week, I'd coordinate like a dance or a volleyball tournament or capture-the-flag game. And then throughout the year, I'd just schedule like different events or games, just social events. (INT-Julia.7/21/10.p10)</p>	
Luis	<p>I wasn't used to living on my own. Ever. I almost caught the dorm on fire because I had a rice cooker. I had a legal rice cooker. It wasn't one you plug in the wall. It was one you stick in the microwave and stuff. The problem is one time I forgot to put water in the rice and the rice caught on fire in the microwave. I'm not much of a good cook but I'm learning, though....Yeah, never lived on my own. It was hard. The dorm room was cramped just like my room back at home but, I mean, I was living there with a roommate, I guy I had never met surrounded by people I had never met. The community was good though. Hobby Hall, they had a really good community. Our RA was kind. We did dorm activities so it got easier. But, I mean, it was still pretty difficult though because I wasn't used to the whole environment. It was just weird. (INT-Luis.7/26/10.pp25-26)</p>	<p>Be hopeful for the future even if "crap" is happening to you right now that you feel is out of your control, you can always pull through. Even if the situation gets worse and you end up getting hurt, take it as an experience and try to move on because if you limit yourself early on, you're hurting yourself in the long term. If you keep pushing forward, you benefit in the long-term from learning from that life experience. Like, in high school, I used to, I had teachers, I met students and teachers who thought that I was an idiot that I could never get anywhere in life.... But I didn't follow their advice or their threats or anything. I made my own decisions and so I feel anybody else who's in a similar situation should, even if they don't have much self-esteem, try to get the courage to push themselves because in the end, they're the only thing that's limiting themselves. Nobody else limits you but yourself.... Pursue your dreams. Don't let anybody force you into a major you don't like. That's about it. (INT-Luis.7/26/10.pp44-45)</p>
	<p>[Calclab]...a tutoring students for students to help do their math homework, the computer oriented math homework. And I worked there for an entire year from January of 2009 to December of 2009, I worked straight. I was here over the summer; so, straight twelve months of working there. And it was an enjoyable job. I learned a lot. I tutored hundreds of people.... In the art of math and it was pretty fun. It was a great job....So I still have good connections, good relations with all my old coworkers. We hang out a lot. My boss, he's awesome. I talk to him all the time. Really good people. (INT-Luis.7/26/10.p20)</p>	<p>Don't be lazy. Take hard classes. I took extremely difficult classes....Take hard classes even if it's over stuff you are not going to study....I mean, take classes in different fields until you find what you want, until you feel that you've finally gotten a grasp over something that you like and then pursue it. Because I did a whole bunch of hit and misses with a bunch of really tough classes and eventually I found something that hit. (INT-Luis.7/26/10.p45)</p>

Participant	Individuality	
	Campus Engagement	Encouragement
Luis	<p>It's been pretty fun [Research]. It's been pretty darn stressful because I'm not used to working on such a project with deadlines, like, real deadlines. It's not just, it's not just a grade, you're gonna get a grade. No, no, no. There's a paper due for a specific conference you've got to get it done and you're working with graduate students who get really stressed out and so they show you the stress by kind of being pissed off at you. I've never been used to that before so it's been a new experience. But it's been pretty fun. Overall, it's been a good experience....It's definitely something you need to experience to really figure out how much you want to do in the future. (INT-Luis.7/26/10.p42)</p>	
	<p>...mainly I've been working with the Student Engineer's council....I've been thinking of joining other organizations but I keep strapping myself for time. I'm not really that great at time management, so one organization is enough. I've tried multiple organizations before and it just kind of backfired with me not having enough time to do what I wanted to do. So, I'm limiting myself to just one organization. (INT-Luis.7/26/10.p34)</p>	

Participant	Individuality	
	Campus Engagement	Encouragement
Madeline	<p>I lived in Briggs [Hall] my first month here with a girl I knew from high school. And that didn't really work out, so I moved to the engineering living center [Engineering Living Learning Community – ELLC], in Mosher, and that was a lot better because everyone just kinda kept to themselves.... I made friends in my classes. We were all in the same boat, so it was something to bond over. (INT-Madeline.7/23/10.p6)</p>	<p>Don't be so sensitive. Maybe try a little harder at school. Don't stress out so much. It'll all work the way it's supposed to....I wouldn't change anything that I did, just because it did get me to where I am. And the characteristics that I do have now were because of what I did during high school and stuff. Because swimming definitely taught me discipline – that's why I'm so disciplined – but I was able to apply it to something else besides swimming. So keep swimming, keep working hard, and it's not the end of the world if you don't get accepted – if things don't go exactly how you want them to....Take calculus and physics.... pre-calc was harder than calculus....I know a lot of people test out of stuff – I wouldn't do that, because that's how you meet your friends, because you're all in the same boat, and you're all like struggling and that's how you bond. The friends I have now, I met them all freshman year, and we're still friends. And then once you're a sophomore and stuff, I don't know what happens, but you're not . . . even the people in your classes or the people you meet, they don't really stick like in your group of friends for some reason. Or you're not as inviting because you think "I already have my group of friends – I don't need anybody else." So don't skip out on the classes. (INT-Madeline.7/23/10.pp29-30)</p>
	<p>...it took me about a year until I finally got a job, because a lot of the professors wouldn't take me because I didn't have enough experience in I.E. stuff. And so it was a lot of disappointments because it seemed like everyone was turning me down. And I was telling my dad, like why have I been working so hard in classes that don't even really apply to my major, for them just to keep rejecting me. And then finally, I guess I annoyed them and kinda just pressed so much that they finally gave me an interview over at the School of Rural Public Health, and I got a job there....And then one of my professors recommended that I apply to the USRG [Undergraduate Summer Research Grants] program, and I did. And I didn't think I was gonna get it because I just got above a 3.0, but I got in, and I was really excited because I was gonna get to do more along the lines of what I wanted to do as a career. (INT-Madeline.7/23/10.p11)</p>	

Participant	Individuality	
	Campus Engagement	Encouragement
Madeline	I'm involved at church at St. Mary's [Catholic Church], and I'm involved at the SWE, Society of Women Engineers. And I do a lot of stuff at church, though. I do like Bible study and Awakening and ushering and all this other stuff. I'm more involved at church. (INT-Madeline.7/23/10.p14)	
	I think I was in SHPE (Society of Hispanic Professional Engineers) for a semester. But SWE is the same time as the SHPE meetings, so I usually go to SWE because that's where my friends are....Sometimes it's like the only time I'll see them for about 2 weeks. (INT-Madeline.7/23/10.p19)	

APPENDIX H

CONCEPTUALLY CLUSTERED MATRIX: THEME THREE

Participant	Essence	
	Family	Culture
Andres	<p>They're really supportive. They don't understand college that much. They don't understand how hard it is or how it works, but they're supportive...."get good grades. Did you get good grades? Work hard. It's good. Moneywise don't worry about it. We'll help you out. Just graduate – I wanna see you graduate." (INT-Andres.4/1/11.p25)</p>	<p>[at home] It was pure Spanish, no English whatsoever....if I talk to my parents, which is almost all the time – when my sisters were there, when I was a freshman in high school, and she was a senior, we would all speak English to them – communication English. And then with my parents, we would all speak Spanish, you know – they know English, but they hardly know, so they prefer Spanish, so it's almost all Spanish. (INT-Andres.4/1/11.pp4-5)</p>
	<p>I guess me and my sister have the same role, to just be the . . . I guess to make them proud. Because they came from Mexico, so we are the goal. It's not they came over, but they didn't come over here – that's not their goal, that wasn't their fulfillment. They're goal is to watch us become better persons. And I have, but I have to finish and graduate. My sister, she already completed her goal – it's my turn, so that's the goal....Just to become a successful person....Have a good-paying job, and to not work as hard as they . . . you know, because I know how they worked, because I worked. You know, the hardship they went through, you know. I guess you could say just not have the same hardships they went through. (INT-Andres.4/1/11.pp26-27)</p>	<p>[with friends] We always speak English. I know sometimes you see a group of Hispanics and they're all speaking Spanish, but I speak English – I just find it easier to speak English. (INT-Andres.4/1/11.p29)</p>

Participant	Essence	
	Family	Culture
Andres	<p>...I go [home] like maybe twice a semester. I could go, it's just a very long drive, you know? And I don't have time, driving on the weekends. It's almost impossible. If you go – one day, you waste a day of driving. You go – another day, it's another day of driving, so you're only gonna spend one day over there. (INT-Andres.4/1/11.p2)</p>	<p>...I have like a couple classmates that friends that are white, but usually my good friends are Hispanic, yeah.... Just because...I don't know, you just get...like you have more in common: you know "this," you know how to take Spanish. It happens. They come from their school, and they bring their friends, and they're pretty much Hispanic. So you meet them, and they have Hispanic friends, and the next thing you know you have a whole circle of Hispanic friends. Of course you also have other races in the middle, but you see it everywhere, Asians with Asians – you can't say white happens – you can see that – but it's a phenomenon that happens. (INT-Andres.4/1/11.p29)</p>
	<p>[Homesick?] No, I don't know, none whatsoever. Like I just came over here, and every day I wake up, and I don't think about it, you know. I mean I'm really . . . I communicate a lot with my parents a lot, but I guess that's why I'm not homesick because I talk to them every day on the phone....I talk to my dad like every 2-3 days, but my mom is like once every 3 hours. It's just kind of like there's no reason why she needs to talk to me, so we talk about the dog or something. But it's just like this happened – it's kind of like me trying to like say this is what happened, I did good in this class or something – it's just like a little casual talking....Yeah, it's like my sister once every 2 days, and my other sister like once a week or something....the one in Austin, because the other one has a family already, so it's kinda hard being close to them. I mean we're close, but it's kinda hard because they're busy with kids all day....She's in Dallas....Yeah and my other sister in Austin, I go visit her sometimes...She comes [to visit him], but she hasn't come this year because she works. But before when she went to school, she would come, but not anymore because she works. (INT-Andres.4/1/11.pp20-21)</p>	

Participant	Essence	
	Family	Culture
Crystal	<p>I think I'm here in college thanks to my family, like from their support and encouragement and everything, right? But I also feel compelled like to help them, because like I come from a low-income family, like you know, we struggled financially and all these things, you know? So like I do try to help them whenever I can, like for favors or to do anything – well, I mean that's what family does too, you know? And since I know a little bit more than they do with like computer-wise and how to get all these things, like I'm usually the one handling things like that, you know, stuff like that...because I don't know, like I always tell them it doesn't matter if I'm busy or not, if they need something, just tell me or ask me. Because I think it's not always good to put them aside just for school, you know? (INT-Crystal.4/1/11.p25)</p>	<p>...I kind of like grew up speaking both [English and Spanish] at the same time....It's both [at home], yeah, because my mom speaks both. Like everybody in my family knows how to speak both languages. So I learned both. (INT-Crystal.4/1/11.p36)</p>
	<p>Since I was really small, I remember having memories. When my grandpa was alive – he's not alive anymore – but like he was the one that always got after me for my grades and stuff, you know, like he was very strict and everything, and I looked up to him – like he was my father figure, I guess, yeah. And after he passed away, I still continued to see that in my family, like my grandma was telling me I could do it, and my mom like, "oh, what happened here?" you know....And it was hard for them to see me move away, but they know . . . how do I say this? I mean I'm not only trying to like pursue a career for only myself, but also for them, and they know that. So they understand – they always tell me . . . I can tell by everything like how they tell me things and what they tell me whenever I talk to them, like when they know I have so many things to do, or when I call or . . . I don't know. Like and I know I am like . . . I don't know how to explain sometimes....But I don't know, it's like . . . hmm, I'm trying to think like how to add more to that. Because like never have they been like very negative for the fact that I'm so far away, or that I come over here, never. They always try to help me even more than to hold me back. (INT-Crystal.4/1/11.p26)</p>	<p>...I think maybe the fact that there's different kind of races here also comes to effect, because like the culture, like you know, like that is different. And well, when I was back home, yeah, I was like...I was in classes where, you know, all those people that were in there wanted to go to college or wanted to do something else, right? But I think I had more friends that weren't really interested in school or didn't wanna have anything to do with that....I think like...and over here, well yes, it's different, like there's more diversity here. But I also see like...I don't know, it's just like...I don't know how to explain it – it's just so very different, like the environment is different, there's different things going on that...back home....Maybe it's because it's a bigger university, you know, how I mentioned there's like more going on, and I really like that. Versus over there, there might not be as much as here, like you know? So it's like I don't know, like there's just so much more, or like it's very different from back home overall...(INT-Crystal.4/1/11.pp28-29)</p>

Participant	Essence	
	Family	Culture
Crystal	<p>Every time I go back home and see my family, all of my family, they all tell me to keep going and finish. Because I guess they kinda wanna see me graduate first, you know. (INT-Crystal.4/1/11.p27)</p>	<p>It was very different coming over here, but I thought it was really cool that I started making friends that..like they would joke around like Mexican...no, they would make jokes about Mexicans and stuff like that. Like without really insulting Mexicans overall, you know what I mean? Like how can I say this...in the back of my mind I, like when I first came over here, I did worry that maybe other people may like exclude me in some ways because of that, because of my race or something. But it was actually very opposite, where a lot of people were like nice and everything. And like I mentioned, like I try to be outgoing. And it was surprising to see like everybody else was kind of like that too....I found myself sometimes where I was in a group of people that were different, like different races, but they would just be outspoken about it and just say things, refer themselves to like...or I mean say things about other races, even though like...or like Hispanics, even though I was there....that's what I meant when I said like though they make jokes about like, you know, Mexicans, and not in an insulting way. Because that's the way it's supposed to be, like nobody should take offense. No matter how other people look, you know. (INT-Crystal.4/1/11.pp30-31)</p>
	<p>I wouldn't really get homesick because I had been used to being away from home for a long time and stuff. Because I had also done like previous summer programs where I would have to leave for the summer, you know? And so that didn't really affect me that much. (INT-Crystal.4/1/11.pp10-11)</p>	

Participant	Essence	
	Family	Culture
Crystal	<p>...I have 2 siblings, a little brother and a little sister. And I live with my brother, sister, and my mom. And growing up, I lived with them, but with my grandma and an uncle and an aunt. So we were in a . . . I'm so used to being surrounded with all my family. And whenever I go home, I go to Harlingen, because that's where I live, right? But after that, like we always go to Brownsville, because that's where our family is at....I guess I could say that I am very family-oriented, because I still miss being at home – I'm like used to being here, but I really enjoy spending time with them, like I always prefer to be over there. (INT-Crystal.4/1/11.p23)</p>	
	<p>I would say I'm close [to family]....if I'm very crunched with time with projects and stuff, I'll tell her beforehand, like "Mom, I'm not gonna be able to talk to you because. . ." and so like I'll call her right after I finish or something. Or if not, like if I have a busy week, like if I don't have time to talk, I'll call between classes and stuff like that. But mostly I think I talk to my family every other day. (INT-Crystal.4/1/11.p24)</p>	
Itzeth	<p>...I've always been . . . my dad mainly has always told me, "You know what you're doing, you're old enough." even when I wasn't old enough, he would always leave a lot of my decisions to myself. I guess if I would've taken a bad decision, then they wouldn't have, you know, supported me. But coming to college and coming to A&M, my dad always said, "You know what is best for you. If that's the college you think is best for you, then go ahead." Again, they don't know many about the universities in Texas. But they were always supportive. And even though when they can't fully support me financially, they still call me, "Are you okay, do you need anything?" I mean if they don't have it, they'll find it somehow and provide me with whatever I need. (INT-Itzeth.4/3/11.pp31-32)</p>	<p>...English was of course a challenge to learn the language, and to interact with teachers in English. I was fortunate that my parents had put me in some private classes when I was still living in Mexico. So that's one of the reasons why I was able to move out of ESL so fast. But definitely speaking the language, because even though I could understand and write, just speaking was a hard thing to do, to learn....The culture, even though it's so close to Mexico, the culture was still really different. And I had to learn how to interact with people that, even though the majority of them spoke my same language, it was just really different, even though it's so close....the way they speak . . . they speak half-English, half-Spanish, at all times. Like it was just funny for me at the beginning, but then when I started speaking and noticing myself doing the same things, I was like I have to stop, I have to try to maintain my Spanish current, and learn my English in a correct way. (INT-Itzeth.4/3/11.p6)</p>

Participant	Essence	
	Family	Culture
Itzeth	<p>I definitely think I am setting an example for many of my cousins, because I'm one of the first ones to go to college. I have other cousins that have a short technical degree that they got in the Valley. But none of them have gone out of their home to get a degree and either come back or go somewhere else, not in my direct family, at least. So I hope they see that it's good. Because I mean from Hispanic moms and maybe Mexican moms, it's really hard to let their kids go, so many of them think, "There's no reason for you to go out of home. I mean we have a university here, what else do you want? It's here." But not in my house, because like I said, my dad had some college time, and he went out of home. So I hope I'm setting an example, and I mean my parents as well, you know, for my uncles and my aunts to see that it's fine, that I'm good, that I didn't went crazy, I didn't get pregnant. And you know, I can get a better job. (INT-Itzeth.4/3/11.p31)</p>	<p>I try to speak Spanish to as many people as I can....I miss just the environment that is created, and I think that's mainly influenced by the language. You know, if I'm sitting in the classroom before a class starts, and everything I hear, <u>all</u> I hear is English. I can go a day, and if I don't go and talk to a friend, or if I don't go home, everything I hear is English. And more in the engineering college, in the computer science classes, that's mainly White students – well, non-Hispanics I should say. (INT-Itzeth.4/3/11.pp27-28)</p>
	<p>...we spend most of the time together. With my mom's side, it's a little bit different, I guess because . . . my parents have always lived with my grandparents, like with my dad's side. After my parents got married in Monterey, they moved back home on the alibus. And they started living with my grandparents. And for some strange reason, they kept living with them. And my mom and my grandma, they just have this amazing relationship, like if they were mom and daughter, that I never understood. And I mean for me, it's odd that I was raised with my grandparents and my parents. And so when I go home, we're just all there – it's all like a big reunion. (INT-Itzeth.4/3/11.p30)</p>	<p>...The food. And I don't know if it's the culture, like . . . well, I guess food goes into culture....You know, just homemade, but I mean the restaurants, it's not the same, even if I go eat Mexican food in the Valley, compared to Mexican food here, it's not the same. So I miss that. (INT-Itzeth.4/3/11.pp27-28)</p>

Participant	Essence	
	Family	Culture
Itzeth	I don't go home very often, because it's a really long drive....Just mainly when we have breaks at school. (INT-Itzeth.4/3/11.p23).	...Definitely loving my culture. I was just talking to my fiancé and to friends from the conference that we went yesterday, and since I got here, I call myself a Hispanic or Latino. Like before then, I was just born in Mexico – Mexican. But I guess if someone asks me right now, “How would you describe yourself” I would probably say Hispanic before saying Mexican, just because. I'm just more proud of being both Hispanic and Mexican, and my culture. I've learned to love my culture even more and to value it, just celebrating things that before I would take just maybe for granted, or maybe just not pay attention to them...And since I've been involved in CAMAC and being, I mean here, it just . . . there isn't a big celebration for, for example, November 20 th which is the Revolution in Mexico, the Mexican Revolution, November 20 th . I mean when you're in Mexico, it's just a huge celebration everywhere you go. And then here I come, and there's nothing, so I'm like “Okay, it's November 20th, we should be celebrating something,” you know? So definitely I've learned to value and love my culture even more than I did when I was in the Valley or in Mexico. (INT-Itzeth.4/3/11.p34)

Participant	Essence	
	Family	Culture
Itzeth	<p>I call home every day, and I've met many people that don't. But they just call like once a week or something like that. So I don't know if that would be considered homesick. But definitely not as much as I did when I was a freshman. I would call home like every time I was walking on my own to class, I would just call home, "What are you doing? Where are you going?" "Where are <u>you</u> going?" I don't know. They already knew it was me that was calling. The phone range, they were like "We knew it was you." And I was like "Okay, then I'm not gonna call again." But then, I would call again. (INT-Itzeth.4/3/11.pp22-23)</p>	<p>I have heard some comments sometimes, a few times, not many, in like my classes. I had a Hispanic professor for math class once, and I didn't have trouble understanding him – I don't know if it's because we probably have the same accent, I don't know. But many students would criticize him. And it would make me feel like if they were criticizing me and my accent, because I identified with him...Other things are when people . . . I mean when people hear my name, they . . . it doesn't matter what I say before, but when I say my name, they're like, "So where are you from?" And I feel like I don't know if it's because of my . . . I mean because of my accent or because of my name or because they truly wanna know where I'm from, or because they don't . . . they're trying to be, you know, to discriminate or something, I'm not sure. But it got to a point where like it really bothered me, that people would just hear my name and say, "Where are you from?" I guess that's been it. Like I haven't experienced anything worse than that. (INT-Itzeth.4/3/11.p27)</p>

Participant	Essence	
	Family	Culture
Joey	<p>...my Father was very strict. My Mother was a lot kinder, but she was also very strict as far as studies goes. She was the one pushing us through school, basically. She was the one that made sure we got our homework done. The that who made sure we stayed on track with the school.... In general, I think I'd say between my siblings I'd say we're a pretty gifted family....I'm certain every one of us is going to go to college, in all likelihood we might all get Graduate degrees....but apart from being gifted, the real reason we all succeeded is because my mother did a really great job just instilling in us certain values. She made sure we understand the value of a education....We grew up very, very poor, extremely poor.....So, pretty much that's all we had to bank on. "Do good in school, be a good person, get through college, and you'll have a better life than your parents had." That was like a summary of the family values....Most of them went unspoken, Most of it was just, you picked up on it just because of the subtlety....You recognized the way she behaved, you recognized why she was trying to get you through this, though but every now and then you would hear her talk about it too....Like, I remember the very first time I heard her say it. It made a huge impact on my life....But, she, let's see, I think I might have been sixteen or so, I was already in high school. We were somewhere, we were in the car. And she was talking to my Aunt who was also in the car. And the conversation went something along the lines of money problems, this and that, and then, "Well, I'm so glad that...my kids are doing good in school. Because I don't have anything to give them other than their education, that's all I have to give them"...."I just have to make sure they have a good value of education, that they understand the importance of it; they'll do everything I can do. That's all I can do for them in life".... And so that just made a pretty big impact on me. It was like a big turning point in my life. (INT-Joey.7/29/10.pp30-32)</p>	<p>I grew up in a very traditional Mexican family, very religious, very close knit and very service oriented. (INT-Joey.7/29/10.p30)</p>

Participant	Essence	
	Family	Culture
Joey	<p>...as children, it was a very, very strict order to the family. For example, don't ever talk back to your parents, you're going to get smacked, that kind of thing....but now, things really changed especially, my parents divorced...right around when I was 15 or 16, things really changed then. Things became more casual. I guess we really became more confrontational, for a time; it got a little bit out of hand. My younger siblings especially started acting up. But I think that my older sister and I really were the peacekeepers in the family....And now that we're older still, everyone has their own life going on. But any time that my older sister and I go back home, it just all goes back to being a happy family. (INT-Joey.7/29/10.p33)</p>	<p>[[Spanish as first language] For the first few years, yeah. Up until I was about four, it was all Spanish at home. And then when I was four, I started going to school and I picked up English and then my house became bilingual. And it became bilingual by the orders of my...siblings....So my sister went to school and she started speaking English and we picked it up at home from her....I went to school and I spoke English at school and Spanish at home. And then the balance started shifting, so that by the time my youngest sister was in school, it was about 50/50 at home, Spanish and English....And now it's mostly English at home. And now at this point we mostly just speak Spanish to my Mom....She's actually fluent in English, but she prefers Spanish....[Dad?] He also speaks it, not very well. But I always speak Spanish with him. (INT-Joey.7/29/10.pp45-46)</p>
	<p>[Go home?] As often as I can, but I don't get to very often....Maybe a weekend every month or so....[as often as he liked would be] every weekend, probably....I love my family. I love spending time with them. (INT-Joey.7/29/10.p34)</p>	<p>MAES is really the full picture there, the vast majority of the students that I know are from Texas, and most are from one of the bigger cities, either Dallas, San Antonio or Houston, and then a lot of them are also from the Valley....So very established cultural bases of Hispanic families. And being that that's the majority of the students in MAES, it really does feel like a proper Hispanic culture, even within this very, very predominately White University....So, really, that's where I get cultural fulfillment from. (INT-Joey.7/29/10.pp42-43)</p>

Participant	Essence	
	Family	Culture
Joey	<p>[Homesick?] Not really, it's kind of that thing, if I spend too much time at home, I want to be here, if I spend too much time here, I want to be home. But I really do enjoy spending time with my family....Though when I got here, I wasn't necessarily homesick, just because I just really liked what I was doing here....But I was definitely eager to visit, visit them....I just, I become a little kid again when I'm at home with my siblings....(INT-Joey.7/29/10.pp34-35)</p>	<p>...at our meetings [MAES] that we have, we bring catered food, there's a lot of Mexican restaurants in Bryan. Bryan has a pretty good Mexican establishment going on.....So, as far as food goes, if I need to buy food, I'd probably go to Bryan and if I wanted some good Mexican food. Otherwise we meet up at a friend's house, we have a cookout or we just cook normal food...like we have Video Game nights....A few people, it's like a potluck event....Somebody cooks rice, somebody cooks beans, someone cooks the entrée. The entrée could be any one of many Mexican dishes...whenever I go to Bryan it's usually with my sister, and she is the one who is very familiar with the good ones. But, let's see, there is one called "El Sol", that one is pretty good....There is Taqueria Arandas. There is at least 2 others. And then La Michoacana has a really awesome store....but it has a restaurant inside....The food is good, it's not great. The food is not as good as say one of the other Mexican restaurants around Bryan. But the culture, it's literally like you are walking into a place in Mexico....And it really does feel very authentically Mexican. And so a lot of us like to go there every now and then. For example, we participate in the really Big Event every year, and after the Big Event we all go, all 40 or 50 of us, we all go to La Michoacana and we just raid the place (laugh)....Yeah, pretty much put it under siege for a few hours. And so, there's a lot of pretty good Mexican food in Bryan. (INT-Joey.7/29/10.pp43-45)</p>
	<p>[Mom]...usually calls me and then she gets mad at me for not calling....every few days....maybe twice a week or so. (INT-Joey.7/29/10.pp47-38)</p>	

Participant	Essence	
	Family	Culture
Julia	<p>...I have a lot more respect I guess for my parents. Not that I was disrespectful when I was at home, but I guess just now looking back, I've seen like the sacrifice that they've done, like just raising me and my brother. I would hear a lot of kids here that would have to take out loans or work 30 hours a week to pay for half of their tuition. And my parents, they've never asked me to get a job – it's just been me on my own looking for these opportunities. And so through that, I've realized I'm really lucky to have parents who are not only able to support me, but also willing to support me throughout college. (INT-Julia.7/21/10.p23)</p>	<p>...since I guess my parents aren't here, and I don't speak in Spanish as much, and so I feel like my vocabulary is dying slowly....[first language?]..... A mix. I'm a Spanish minor, and so I guess that has kind of helped because I'm able to take classes and just refresh my memory. But I think in that way, it's kind of hindered me.... Yeah, my mom speaks mostly English unless we're in trouble. My dad, since he grew up in Puerto Rico, he moved here I guess when he was like 25 or so. And so he's just always felt a lot more comfortable speaking Spanish, so he speaks Spanish to us. He understands English. And my brother always speaks to him in English because he can't speak Spanish. I used to speak to him in English, but now that I have no one to speak in Spanish to, I always try to make an effort to practice with him. (INT-Julia.7/21/10.pp27-28)</p>
	<p>...My mom was kind of a little more attached than my dad was. My dad was like, "It's good for her to be independent".... It's been good. It's definitely helped me mature a lot. And I think it's changed my relationship with my parents – like not in a bad way or anything – just I think now they see me more like less of a child, and kind of like an adult, a mix of both. Because now every time I go back, we're able to have full conversations, and it's not like, "Do your laundry" or whatever. (INT-Julia.7/21/10.p9)</p>	<p>Music, not so much. Food, I mostly just miss Cuban food in Miami. I think that's more of where I grew up, rather than my culture. (INT-Julia.7/21/10.p28)</p>

Participant	Essence	
	Family	Culture
Julia	<p>I guess for my brother, I'm more of like a guidance counselor. He looks up to me a lot. And it's really funny, like my mom will tell him one thing, and he won't listen to her. But if I tell him the exact same thing, he's like, "I should really do this." And so I may have just abused that when I was in high school. But now that he's older, I'm like I'm gonna give him some good advice, especially like for college, like what to look for in a college. Just because I come to A&M doesn't mean he has to come here, that it's the right school for him. Advice on/in school, because he doesn't really care for school, he's like, "Homework, I'll do that later." And so I'm always telling him to do his homework, promising it'll pay off in the end....To my parents, they view me not like completely as like a peer, but I think it's getting closer to that. Because they always . . . or at least now that I've been gone, they ask me a lot of help I guess just with my brother....they're like, "What are ways that you think would be good just to get him to sit down and do his homework?" or different things like that. Or if my parents sometimes, they might not agree with something or agree with each other, they're like, "Who do you think is right?" Like it's not really what you think is right – it's how you work it out. (INT-Julia.7/21/10.p29)</p>	<p>...I don't know if that's more of like a Texas A&M thing, or like a Texas thing, or American – since I've just been here, I don't know if I can really just say it's from here – I feel like a lot of people are surprised that I can speak English fluently, or I don't have a Hispanic accent. And I'm still able to like speak Spanish as well. I've had a number of people, "If I were to talk to you over the phone, I'd think you were white because you can speak English." And I'm like [Laughs] "I can speak it". . . I don't wanna go into it. A lot of stereotyping . . . or I guess I don't know if it's stereotyping, but like people would see me, and they assume that I'm Mexican. And they're like, "Oh, you've never been to Mexico? You've never seen your family?" My family is not from Mexico. That one is the most I've had trouble with, because that one kind of frustrates me a lot....This one time I was playing soccer with some friends, and like I had never really played soccer before. And like I did pretty well, and they were like, "Oh, it must be the Mexican in you." And I was like I'm not Mexican – Puerto Ricans usually play baseball actually. And they're like, "Oh, well, it's the same, right?" And I was like no....That's one thing that like really gets under my skin. It takes a lot just to get me angry. But that's one thing – not only just assuming that I'm Mexican, but assuming that because I'm Puerto Rican, like I'm no different, like culturally or how we speak or anything, than someone who's from Mexico. And I've had a lot of that since I've come to college....(INT-Julia.7/21/10.pp31-32)</p>

Participant	Essence	
	Family	Culture
Julia	<p>My parents were both born in Puerto Rico. And then my dad, like he grew up there, and my mom moved to Arizona when she was like 10 or so. And then she moved back eventually to Puerto Rico to go to school there. And then my parents met, and they moved to Florida, and they got married, and they had me and my younger brother. My mom is a professor at the University of Texas in Arlington in nursing. My dad is a CFO of an insurance company. My brother is...a couple years younger than me.... (INT-Julia.7/21/10.p8)</p>	<p>In high school, not as much because most of my friends were also minorities, and so my friends were say Indian or Pakistani, and if they were all grouped under I guess whatever, they would be upset too. And so they related to me in the sense that I didn't like being clustered as one race. And the same with my Asian friends – some of them are Korean or Chinese, and they didn't all like being called Chinese, because that's not where they were from....And then from here, I don't think people understand that . . . like I'll always try to like tell them, you know, like, "What if I called you British? You're not British." And they're like, "Well, I don't care." You don't understand my example. So I found that to be difficult....And I guess not as much – that one is my main problem – I guess a few times people have expected me to under-perform in what I do, and they're expected to see that, you know ... like even as a sophomore, I was able to get like my Aggie ring or the . . . I've been like able to maintain above a 3.5, or that I've come in with a lot of scholarships. And they're like, "Oh, wow, I wouldn't expect that from you," or something, and stuff like that....I just try to like blow it off like it's okay, they don't mean anything mean by it. I realize that this is more like ignorance and not actually like a hate-based stereotype. And so like I guess I just do my best to educate and be like hey, Puerto Ricans are different because we speak Spanish differently. We're not even a country – we have different traditions. And it's been pretty difficult because a lot of my friends, they're not really open to that. And so they're like, "Well, you know, those are your traditions – why do I have to learn about them?" and stuff like that....(INT-Julia.7/21/10.pp32-34)</p>

Participant	Essence	
	Family	Culture
Julia	[Go home] ...Usually once a semester, like apart from Christmas Break or Thanksgiving. (INT-Julia.7/21/10.p10)	The only ones who seem to have been more receptive to those are friends of mine who are a minority or like African American or Indian. They'll be like, "Oh, you know, that's really neat. Where I'm from, we do this." Or I guess like my boyfriend, I've been like, "You're gonna learn Spanish." And so he'll be open to I guess . . . not even like just learning things, like just trying different foods or like just watching things in Spanish, maybe like foreign films, things like that. I think it's kinda sad when you've closed off your mind to like literally an entire world of culture. (NT-Julia.7/21/10.p34)
Luis	It's kind of hard to really describe it. They just, they've always pushed me to succeed in my life. Like, basically, my work is really stressful since it's engineering work, huge workload, they always support me. They tell me I can do it. If I'm feeling really stressed out, sometimes they'll even visit me. The family will just pick up their things, leave the house, come over here, visit me, cheer me up. I mean, they just, really help push me. My parents tell me no matter what major I chose, I mean, even if I continue going in the direction I'm going in right now, they'll support me. My mom initially wanted me to be a doctor or a civil engineer. But, she said, since I chose something that I loved to do she's pushing me to do well, supporting me in that area. (INT-Luis.7/26/10.pp17-18)	Only my father is really from Puerto Rico. My mother is from the Dominican Republic....I kind of have like a dual thing going on. There's, basically, my entire family is from the Caribbean. The Caribbean Islands, pretty much that's where they all are and they all still are there....[speak Spanish?]To a point. My Spanish is a bit broken. My vocabulary isn't really that diverse, I must say. One of my goals right now is to actually learn Spanish, officially, finally. Because, I've never, I can read Spanish pretty well. I can read high quality Spanish literature and figure it out. I can watch the news and understand it. Even if they're talking really fast, I can understand. I can't really speak it that well. And I can't write. I can't write – you can't ask me to write in Spanish. I just can't do it...[primarily spoken at home?]Spanish.... Yeah, my parents wanted me to learn Spanish. So, I can understand both my parents but sometimes it's hard for me to communicate with them because I, just, my vocabulary is so limited and I have to use simple phrases sometimes but I can communicate alright, I guess. Like, my own version of Spanish....My father speaks English fluently. So do my siblings. My mother is learning English. (INT-Luis.7/26/10.pp35-36)
	For me it's kinda hard being away from my family. I guess that's another reason why I chose Texas A&M because I wanted to be close to my family. So, I mean, Texas A&M is basically about two hours away from Killeen. So, it's not that far. My family can always visit. (INT-Luis.7/26/10.p11)	

Participant	Essence	
	Family	Culture
Luis	My family and I we hold a really close tie or we hold really close ties. We, our conversations are open. We don't hold anything back. We argue all the time. I mean, that's how close we are. Our family is so close that we can argue with each other to the point where it's just annoyance. But then, like five minutes later, we're back to cheerily talking to each other, really happy. That's just how we are. (INT-Luis.7/26/10.p16)	

Participant	Essence	
	Family	Culture
Luis	<p>...to a point I was homesick because I love my family. But, at the same time, I knew I was here for a reason and going home right now, or at that time, I knew it would be pointless because I knew people who were constantly going home to their families. Constantly. Every other weekend going home. I could not bear to do that. I mean, going home and then going away from them, going home and then going away from there; it just felt pointless. That just put more strain on you than anything else. And you work here to study so you should go through an entire semester first. Then you can go home. You know, and that's the way I've been doing it continuously. I've rarely gone home during the actual semesters. Usually my pattern is: stay in school the entire semester and then go home. Then come back. Then go home at the end of the next semester....sometimes I go home during Spring Break, sometimes I don't. It depends because my professors tend to give us projects for Spring Break just because they want to, so we have to stay in....Thanksgiving break, my family usually does visit. They usually have off. Like, my siblings have off in high school and we get an extended weekend here but I tend to get projects or I have to study for my finals during Thanksgiving. So I don't leave campus. I wait till after my finals to go back home....It's helped out a lot. I mean, it's a regular pattern. I mean, it's funny. I joked around with my dad that it kind of feels like I'm getting two weeks of vacation for four months of work because I feel like I actually have a job, you know. I'm away from the family on projects. And, since my dad is in the army, he goes away for long periods of time; comes back for two or three weeks, then has to go back again and do stuff. So, I kind of equated the situation to being similar to my dad's. I mean, he jokes around saying, "No, it's not because I live out in the forest somewhere for a few weeks. You live in a dorm. Even though it's a box, it's a building." (INT-Luis.7/26/10.pp26-28)</p>	<p>...in high school, basically, I mean, you would always hear the same jokes. Like, "Oh, you're a good swimmer." "You're a runner and climber." What have you. Those sort of things but, I mean, in high school I'd have it happen a lot where people would say, "Ah, the Mexican guys." Like, "Uh, no. I'm Puerto Rican. Get that straight. I am not Mexican. I have nothing against Mexico but I'm Puerto Rican. I'm Hispanic, but get it straight. Don't run those stereotypes on me," you know. I guess I've always tried to separate myself from the basic stereotypes by trying to be different from what the stereotypes say. You know, like, you're an idiot or whatever with no life. I'm a straight A student almost. Basically, a straight A-/B+ student. You know, I'm not an idiot. I can speak in an understandable tone. Like, you can understand me. I don't mutter my words all the time. I, you know, I'm not an idiot pretty much and that was the stereotype. Like, in high school, if you were Hispanic, you were an idiot or you shouldn't be doing hard work or you're stealing something. I tried to be honest and stay firm on what I believed in and to work towards that end....At A&M, you don't encounter it much. It's more, really, just joking around. Like, it's, oh you Hispanics, you Mexicans. We joke around like that all the time because here it's actually different. There's a lot of Hispanics in engineering or technical fields here at A&M. We don't really care anymore. All the Hispanics I've known here at A&M, we just don't really care because, I mean, honestly, our achievements here pretty much stand, stand to a test for us. They basically cheer for us, like. And if you want to insult us, let's look at what we've achieved. Let our achievements, basically, do the explaining for us. That's the attitude here so we don't really care. (INT-Luis.7/26/10.pp38-39)</p>

Participant	Essence	
	Family	Culture
Luis	<p>Like, literally, I'm like, I'm used to talking to my parents, asking them for advice, or just telling them how I am so literally speaking every single day I'll just call home and just say, "Hey, how're you doing?" and stuff. "This happened to me today, what's your opinion?" Or, "How're you guys doing?" I'll just talk to them. (INT-Luis.7/26/10.p16)</p>	
	<p>...like I said, I call my family all the time and get them to help make me feel better by just talking to them. (INT-Luis.7/26/10.p26)</p>	
Madeline	<p>...when I graduated high school, there was a lot . . . like McAllen, there's a bunch of poor people, I guess. And in my high school, there was a lot of people like that, that they were crying during graduation because they couldn't believe that they actually graduated. And for me, like I never felt that way. I knew I was gonna graduate from high school and go to college, so I was confident in that. (INT-Madeline.7/23/10.p10)</p>	<p>[Spanish] I'm fluent....I don't know grammatically. Speaking, yes, because my mom never learned to speak English, so I speak Spanish at home. Writing, I can make myself understood – maybe not grammatically correct. And then reading, I can read in Spanish....I have a lot of Hispanic friends, but we never speak Spanish to each other just because we feel like it would be really awkward to just start speaking Spanish when no one else knows what we're talking about. I have like a pet peeve about that, because I wouldn't want someone to start speaking another language that I didn't understand, right in front of me....Even in high school, no one really spoke Spanish. Even like people that were from Mexico and stuff didn't speak Spanish, not in my group of friends. (INT-Madeline.7/23/10.pp23-24)</p>
	<p>...I appreciate my family a lot more than I used to....Just being there, being able to lay on my couch and have my mom there. Because when I'm home, it's not like I am lazy or whatever. I run errands with my mom, and we do a lot of family stuff, but it's just having them there, like having someone to talk to, instead of just your TV. (INT-Madeline.7/23/10.p21)</p>	
	<p>...I was an only child for 6 years, and then I'm just used to my family catering to me. And I'm the only girl, so I'm like the princess of the house. It was weird being away from my family, because I'm a very anxious person, and I get stressed out very easily. (INT-Madeline.7/23/10.p5)</p>	

Participant	Essence	
	Family	Culture
<p style="text-align: center;">Madeline</p>	<p>...I think I'm more homesick now than I was freshman year. (INT-Madeline.7/23/10.p21)</p>	<p>It's just the culture. Being close to your family. Some of the values that you might have. I don't know – the culture....The food. I feel like people are a lot more friendly when they're Hispanic. I don't know. It's weird to say, but I've dated like Hispanic guys and guys that aren't Hispanic, and the Hispanic guys are a lot like open, more open, whereas the non-Hispanic guys are very closed and like difficult to get to know, so they're very guarded, I feel like, whereas most of the Hispanics I've met are very open to accepting you into their group....(INT-Madeline.7/23/10.pp26-27)</p>
	<p>...since I live 7 hours away, I didn't [don't]really get to go home [only between semesters]. (INT-Madeline.7/23/10.p6)</p>	<p>...hanging out with my friends helps, and going to Downtown Bryan and getting Mexican food is also helpful....[favorite restaurant]Casa Rodriguez. It's like the best Mexican food ever....My mom cooks a lot. And a lot of my friends freshman year, their idea of Mexican food was like Taco Bell or Taco Cabana, and I was like no, this is not Mexican food – it's kind of insulting that anyone would think that Taco Bell . . . their crunchy tacos are good, but it's not Mexican food. (INT-Madeline.7/23/10.pp28-29)</p>

Participant	Essence	
	Family	Culture
<p style="text-align: center;">Madeline</p>	<p>[Talk to parents]...my dad, once a day – my mom, about 3-4 times a day – every day. (INT-Madeline.7/23/10.p25)</p>	<p>...Just because I don't look Mexican enough for people, they can't believe that I speak fluent Spanish, or they can't believe I don't have an accent. It's kind of insulting, just because it's so stereotypical – they expect I don't know what some like darker-skinned person riding a donkey with a sombrero – I really don't know what they're expecting a Mexican to be. So that kind of upsets me, because I mean I don't judge them for not being American enough or whatever. And a lot of people here are from really small towns, so they haven't experienced a lot of different people, a lot of variety of people. And in the valley there's all sorts of people, so I was never shell-shocked about all the different ethnicities or anything like that, just because I grew up around it, and it was okay. But a lot of people here are shell-shocked that there's people besides White people, I guess, Caucasians, I don't know....I just ignore them. A couple of my friends were like that – I'm not friends with them anymore. But there's a racist undertone, definitely, when I got here, just because people were so fascinated that I was Hispanic and I didn't really see what the big deal was that I was Hispanic. That kinda made me feel uncomfortable. (INT-Madeline.7/23/10.pp25-26)</p>

APPENDIX I

CONCEPTUALLY CLUSTERED MATRIX: THEME FOUR

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Andres	I knew it was harder, but A's weren't expected – I didn't expect A's, I just expected to pass the classes because I would talk to other people and get them saying "you're good," so I pretty much tried and I knew I tried my hardest, I did. But it was like a different experience, it was harder – I studied a lot and got B's, and I was happy with those B's, you know, cause hey, B's, so that's where I was academically. (INT-Andres.4/1/11.p11)	I started with like pre-calc, physics, yeah, and engineering – it wasn't that many engineering classes. So pre-calc was alright, but like engineering I had no idea. Just imagine, never hearing stuff like that. And then physics, I kinda knew, but since I was kinda good at math, I just figured it out after a while. But yeah, it was really hard in the beginning....Now it's easy because I just build up from what I learn, and I know the routine. I know how to get the grade – I don't have to be perfect – I know there's a perfect winning method to get the grade, so I know how to do everything now. (INT-Andres.4/1/11.p16)	For tutoring, I never go to tutoring. (INT-Andres.4/1/11.p16)
	Not ever being exposed to that stuff, not ever seeing those concepts, those ideas, not even being close to seeing it....but at the beginning....So like the 1 st year, I was trying to understand what was going on, what's anything, so that's like the biggest challenge. (INT-Andres.4/1/11.p15)	No study groups. I could have. I mean, I do have friends, but it's usually during tests and happens once. I don't like studying with other people – it's a distraction to me. I usually love being by myself studying like in the library. (INT-Andres.4/1/11.p17)	I go talk to either the professor, which is not that much, or usually they have TA's help me out – because professors if I go talk to them, they're just gonna confuse me more.... TA's are always understanding. Like this semester I have this class that in the beginning was really crazy hard, so I talked to the professor and he just made it harder, and so then I talked to the TA and he took the time to help me out....I always go see the TA during class, during the recitation, I talk to them there.(INT-Andres.4/1/11.p17)

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Andres	<p>I guess it was the whole studying part like I have to . . . I mean from high school coming over here, I never studied in high school and now I have to study, so that was like the biggest change....So that's the only thing, how to study, how to change my study habits, that's it. (INT-Andres.4/1/11.p20)</p>	<p>I usually study in my room, but when tests come, like if the test is a week before, like 5 days before the test I go to the library. It's like a tradition, almost, to go to the library before the test....It helps me concentrate. It's just weird because I can do it in my house, but then the fridge is there behind me, I'm hungry, the TV is right there, you know, I'm tired. But if I'm out of my room, I go and get a parking spot, and I put 4 hours in the meter, I'm not gonna leave early cause I'm like "I just wasted money" and so I have to be there 4 hours – I might as well study....I mean 4 hours, I'm gonna study. There's nothing that's gonna move me. I'm studying. I'm not gonna get distracted. Everything is just far away from the library – there's no food, so there's no TV, so. (INT-Andres.4/1/11.pp17-18)</p>	<p>Professors always try to help you. Every time you go and you ask them a question, they're always gonna answer you, and they care about your grade. The faculty, sometimes maybe they're not informative, but they do their job. Professors always try to do their best job, yeah....Sometimes I feel like "God, I came and I wasted my time, because they told me they'd really try and help me out, but they're just too smart – I don't know what they just said, so I don't feel like wasting their time anymore." And I could probably figure out the information. But they never been like, "This, how you do it – I gotta go." It's never like they – they just try to be helpful. (INT-Andres.4/1/11.pp21-22)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Andres	<p>My school was small so it doesn't have all the resources....But engineering, there's no preparation whatsoever in my school, zero percent, or engineering, zero, so that's why it was so hard. (INT-Andres.4/1/11.p23)</p>	<p>I always study by myself. I'm gonna spend hours on that concept until I get it. If I don't get it...like I'm ahead of the curve – if I don't get it, a lot of people don't get it. So if a test comes, I'm gonna do my best, and I'm probably gonna like not get the question right, but nobody is gonna get it right. But I'm always trying to find out, and if I can't, I go talk to the teacher, no, first I go talk to the TA then to the teacher, and if that doesn't work, then I give up. But I don't mean I give up – I try my best, but I know I'm not gonna be able to find the answers to the concept. So then the test comes....I try for hours and hours and hours of thinking, thinking, thinking, thinking....[ask fellow students] Yeah, I do. I actually do, but the thing is whenever I don't understand a concept, they don't understand the concept either, and then we're all like what's going on? And then they usually ask me, and then I ask them, and they're like "oh, okay, that's how it works out." But I don't know why I rarely get any help from their input – it's just weird. Like they tell me how to do it, and then I'm like "oh, that's how you do it," but then outside I'm like "I don't know what he just said." (INT-Andres.4/1/11.pp22-23)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Crystal	<p>I would say my biggest challenge overall was my senior year, because like the summer before school started, my mom had just moved to Harlingen....And so I pretty much decided to stay with my best friend, like during the year and stuff. So I guess like it was hard for me to not see my family during the week and stuff, and to try to like keep my grades up for all those AP classes and stuff. Because I loved playing soccer, so I would have that, and I had my games and tournaments and stuff. And then I had to go back home every weekend and back. (INT-Crystal.4/1/11.p5)</p>	<p>...throughout the years here, my study hours are very different. You know, like coming in here, I did put a lot more into it, but then I think I gradually started taking some off. (INT-Crystal.4/1/11.p17)</p>	<p>I try to read like my notes or the book several times, like a couple times or so. Well actually, most of the time I stop it after the first time because I'll be confused. And it depends on the subject, because if it's math, I attend the help sessions. But that's the only help sessions that I attend, it's only for math. If it's like for some other subject, like one of my mechanical engineering classes, I prefer to go straight to the teacher....And I ask my questions, because generally they know more than my peers. (laughs) So I mean that's the reason I prefer to go to them first. (INT-Crystal.4/1/11.pp21-22)</p>
	<p>...academically it was also different because the workload was much more and stricter than high school. And that wasn't hard to transition into, because coming here I was scared of failing, so I busted my butt off. (INT-Crystal.4/1/11.p11)</p>	<p>From reading my books to...depending on the class, we have online quizzes and assignments and stuff. And that also includes reviewing my notes, studying, doing practice problems, or doing any other homework that I'm assigned as well. (INT-Crystal.4/1/11.p18)</p>	<p>Because I know a lot of students don't like to go to their teachers or they prefer to take another route. But from my experience, it's always more helpful to go to them because I think they have . . . since they have so many students going to them, like it's kind of like quicker, or you cannot really know what to say, and they just help you, they just do it....I would say luckily so far, I think I've had most professors that are very willing to work with you with office hours and stuff. Because I've heard of bad teachers, but I think I've had pretty good ones so far. (INT-Crystal.4/1/11.p22-23)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Crystal	<p>...there were some times like when I would be in class in high school, where you have like students that already graduated or attending college who come back and kinda talk about it. So that's why when I came over here, I was really scared of failing. So I guess I thought it was harder than it actually was. Because I had this impression that I'm not smart enough, I have to try even harder or something. But then I realized later that not everybody here knows everything, you know, like they had to learn that is why we're attending class. So that's when I realized okay, I'm like I should be just about the same with everybody else....I would say that my AP chemistry teacher and my AP English teacher were two of my teachers that really helped me, like better prepared me coming over here, because they were . . . they asked a lot from the students, you know? And I guess it was good practice being involved and like because I always had like soccer practice, and then I get home late, and doing my homework until the next morning, you know? And I think it was a good juggle of doing everything that they asked me to, you know? And like versus coming over here and doing the same. (INT-Crystal.4/1/11.p19)</p>	<p>...I do try to have like study groups....I have different classes with different people all the time. (INT-Crystal.4/1/11.p22)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Crystal	<p>...I was in some summer programs when I was in high school, and I think it was the summer before sophomore year...where like I went to a university and did this whole summer program....[at] UTPA. And it was this program called UBMS, Upward-Bound Math and Science....I really enjoyed it, and not only from like my experiences, but it really helped me out because that's one of the things they helped you out, like how to go about things or how to do things, you know? That was more of a like . . . kind of opened the door to get me knowing what I needed to get done or wanting to do. And then after that, like the counselors at my high school helped me out. (INT-Crystal.4/1/11.p35)</p>		

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Itzeth	<p>When I came to my conference, that's when I chose my courses, and that's when I realized that I wasn't gonna be able to start taking my computer science classes my freshman year, because I wasn't accepted into the College of Engineering. And the person that I talked to said that I could start as an ag engineering major because they would have like the same basics, and I wasn't gonna have any trouble registering for those classes, so that's what I did....They did allow me to take one introductory course to computer science, but I also had to take an introductory course to ag engineering and just the basic courses, math, I took chemistry. It was a hard semester my first semester....I started getting my grades back, and they weren't exactly 98s or 100s (laughs). And that hit me really hard. I don't know if that happens to like a lot of students....But it's just not the same thing. And even though I tried really hard, it was still horrible. My first semester I got a C in chemistry, and it was really hard – like wow, I never got a B, even less a C....So I was really pressured because I just wanted everything to be good, I wanted everything to be in its place, so I just wanted to get good grades and be able to transfer as soon as I could. (INT-Itzeth.4/3/11.pp10-11)</p>	<p>I wish that I had a better GPR, but I'm trying. I know that I've done my best....but I wish I had better grades. (INT-Itzeth.4/3/11.p12)</p>	<p>...I would go to SI sessions, and I would try to take advantage of like all the opportunities that they would give for extra learning. (INT-Itzeth.4/3/11.p25)</p>
		<p>...I just try to study with more time ahead of my exams, or try to review my notes, you know, after class. I would try to get out of my room, out of the dorm, go to the library, because I just sometimes felt that I couldn't concentrate in there, and then I would go to the library. I mean I try to do something I haven't done for the class. If I see that taking notes on paper...it's not really making it, I try taking notes on my computer. (INT-Itzeth.4/3/11.p25)</p>	<p>I've gone...no more than once to each professor I've had....I think I find it helpful, but it's still something really hard for me to do. (INT-Itzeth.4/3/11.p26)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Itzeth		<p>I tried studying in groups – I found out that doesn't work for me....it became more becoming friends than studying, so I decided to just study on my own. And basically I've been studying on my own for most of my college career. I know many professors recommend studying in groups, but that just doesn't work for me. (INT-Itzeth.4/3/11.p25)</p>	<p>...I'd rather go to my TA's in the computer science department. Almost all the classes have TA's....I think they're more – not that they're more approachable, not like the professors. There's many professors that encourage you to go to their office hours, you know, like every day in class, like "I'm there, if you need anything – go." And TA's are more....it's easier for me to approach them. Many of the professors in the computer science department are from different ethnicities – many of them are not white, they are something else. But I think that intimidates me a little because I'm scared I'm not gonna be able to understand what they're saying. And when you're like one-on-one, I feel like I would be saying "Excuse me, can you repeat that?" And so I guess that's why sometimes I prefer going to the TA's instead. (INT-Itzeth.4/3/11.p26)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Itzeth	<p>...at the beginning...I had to take a...math test. I didn't get a good result on it, so I had to take Math 150....So that made me feel like I wasn't prepared enough – I don't think that was a good start. It just made me feel unprepared....I mean just when I started taking all my classes, and some of them I was doing really good, and some of them I wasn't doing as good, like my chemistry class....I mean it didn't matter how much I studied, that class I would still not get good grades. I guess in some areas, I would say that I was a bit unprepared....For math...I think I wasted my time in that remedial class.... It wasn't hard for me taking that remedial class. And I just thought that I did bad on the exam, and I don't know why. But it made me feel like I was unprepared, which I think had a big effect on my performance for that semester. And the rest of my classes, I wouldn't say unprepared, but I did learn about other people that had gotten like really high grades on their ACT test or SAT. I got a higher than average and higher...I mean I got a really good grade for, you know, compared to other people in the Valley. But when I came here, and all these other people that had gotten almost perfect grades, I felt like I wasn't smart enough to be here. But I made it through. (INT-Itzeth.4/3/11.pp23-24)</p>	<p>[Studying] Outside of class? I mean it's just a lot – I don't think I can tell you a number of hours. At work, I mean this semester I'm working 18 hours, but during work I'm not busy the whole time, so I'm doing stuff for class, I'm doing homework. I go to class and I go back home – I mean I don't have so many meetings in my organization, I don't go out much - I'm doing school stuff always. So I don't think I can tell you like an amount of hours. (INT-Itzeth.4/3/11.pp32-33)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Itzeth	<p>And still sometimes I meet people, and one in the computer science department, and they had like 4.0, and I'm like maybe I wasn't prepared to be here. Maybe if I would have stayed in the Valley at another university, I would have a 4.0. But I mean I've tried my hardest, and I don't know if it was because of the educational level, or if it was just me, I don't know, I'm not sure. (INT-Itzeth.4/3/11.p24)</p>	<p>...I mean I've always said that if you just do your homework, saying you just get your homework done on time, I mean that's a huge part of your grade. And I mean just studying for the exams with time ahead. I could say not procrastinating, but... sometimes I do, sometimes I don't. Sometimes I think I work better under pressure, sometimes...not that I like stop doing stuff and just I'm gonna spend the day not doing anything now. I do other stuff, but it's just so much work that I can't ever caught up with it. So I've gotten used to work sometimes under pressure, and I've gotten good results, strangely enough. But just, I mean, I don't know, I mean if I know I have something to do, I'm not gonna go out, I'm not gonna go to a meeting.... I put school first....I have my fiancé, I mean we've been boyfriend and girlfriend for a long time. And even when I, you know, I still try to talk to him, but he still knows that I have all these things to do. Not because I have a boyfriend, I'm gonna stop doing my homework. And just giving school its priority, I think. As long as I give school the priority it should have, I think it should be fine with classes. (INT-Itzeth.4/3/11.pp33-34)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Joey	<p>For the most part it [high school] was very, very boring. I grew up a very smart kid. And throughout Middle school and Elementary school my teachers recognized that and pretty much gave me a separate curriculum from the rest of the class. In high school that wasn't possible, so I ended up doing the same stuff that everyone else was doing, so that why I ended up taking as many of the advanced classes as I could. And I found them very boring. Anyhow, I wasn't very studious, which attributed to my low GPA. Well, it wasn't low necessarily, it was about an 88 or so out of 100, it just wasn't very high a ranking compared to the other graduating seniors. (INT-Joey.7/29/10.pp3-4)</p>	<p>I like the details. I like learning. I like learning a subject in the details. If I can into the details I can hold on to that subject very well. (INT-Joey.7/29/10.p7)</p>	<p>I prefer self-research. So if I can't figure something out I look into it.....If I can't figure it out by brute force, just attacking the problem, I will look for similar problems elsewhere....I would do some research online or I'll crack a book....I can usually figure it out that way. (INT-Joey.7/29/10.pp24-25)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Joey	<p>It may not be a fair judgment, but everybody that I remember from high school liked to joke that our high school was really, really bad academically....It wasn't really, as far as grades went, we did OK. But a lot of the teachers didn't really seem interested. There would be a lot of classes, and really important classes, where the teacher just sat at their desk and made sure that nobody gets out of hand. And they didn't really teach anything, they just sat there. That was a big disappointment. But among the teachers that did teach, they tried, but the material they were restricted to was pretty weak. It wasn't anything that really drew my attention. It was stuff that I had already picked up on, either online or reading a book or something because I'm a big self-learner....And so, a lot of stuff that was given to us in high school was very, very old for me. It wasn't interesting any more. (INT-Joey.7/29/10.pp12-13)</p>	<p>...the first week that we were here they do what they call "Gig 'em Week" or "Howdy" week....Where they try to indoctrinate you into the society of A&M....And apart from all the other traditions they teach you, they also try to give you like study habits...time management, money management, all these just practical skills. So, they were trying to scare us straight with "Okay, you can't get away with what you did in high school"....Not studying for a test and then doing it, so they tried to scare us straight for that, it got me on edge a little bit, I but found that it was still very easy. (INT-Joey.7/29/10.p9)</p>	<p>[need help] First? I'd probably ask another student in the class. (INT-Joey.7/29/10.p25)</p>
		<p>...when I got to college, then finally, there was new material. (INT-Joey.7/29/10.p13)</p>	<p>...I like talking to my professors. I just don't usually go to them for academic help. (INT-Joey.7/29/10.p25)</p>
		<p>Honestly, I'm kind of lazy, just because I can get away with it, and so far I've been able to get away with it. I'm sure that one day it's going to come back and bite me on the butt....But, so far I've gotten away with it. (INT-Joey.7/29/10.p14)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Joey		I love projects, I love project work....For example, if we were given a project to, say, I don't know...for example, I'm in Software, so if they give us a project to, I don't know, go write a program that does something, I would love it. I would work all night on it. And I'd really dedicate a lot of time to it. (INT-Joey.7/29/10.p14)	
	It [high school] was a selection process. It was segregated by performance. So, the AP classes the Pre-AP classes, those stood on one side, and then the rest of the students were pretty much – at least it felt to me – thrown to the wolves. It was pretty much pick out the students that might have a chance, give them everything you can with whatever resources you can, and it wasn't a great school, it wasn't a great district, but whatever resources you have at your disposal, and then the rest of the students, just make sure they don't get into trouble. That's really what it felt like to me. That might not be fair, I really don't know, but that's just what it felt like while I was there. (INT-Joey.7/29/10.p19)	...lecture material? I absorb it very well in class. So as long as I'm paying attention in class, I don't really have to go back and study, almost ever....around the time that a test comes along, all I really have to do is, if I took any notes, maybe flip through my notes an hour before the test. They always tell you that cramming doesn't work, but it really works for me. One hour is what I realize is about the right amount of time for me to study before a test....For most materials.... So, I'm the kind of procrastinator that crams. (INT-Joey.7/29/10.pp14-15)	
		It's just the way I learn things. I pick up on material quickly, and I absorb it deeply....all it takes is just a moment's recollection, just look at it and I'm "Oh yeah, I remember that." And it just all pieces back together.... it's just remembering the material....It's just remembering what the material I need to know is. (INT-Joey.7/29/10.pp15-16)	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Joey		<p>...it's all a process. As long as I can understand the process, I'll do just fine....It's the same as say a lecture class, where you have to remember names, dates, whatever. It all absorbs the same to me. It's just, I either understand, remember some details of say History or remember the details of a process, such as solving a type of specific problem....if I do it once and I get it right, I can usually do it again, just on command. (INT-Joey.7/29/10.p16)</p>	
		<p>...I need to [understand the process]. It's like a compulsion for me. I don't like, what some teachers would say, "Believe the magic of it," I need to know why it works. That's why I'm in Engineering. I need to understand the "why" and the "how." If I ask a question in class it's to clarify the "why" and the "how." (INT-Joey.7/29/10.p17)</p>	
		<p>[hours per week studying] It really depends on the classes that I happen to be taking. If it's something that is project intensive, I'm always having to program something....It's going to be a lot, it might be 20 to 30. If it's something like all lecture material, probably zero....[average?] Maybe, 15. (INT-Joey.7/29/10.pp29-30)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Julia	<p>I wouldn't say it was like the high school or the teachers themselves, except for one of them. One of them was always like, "Okay, you're gonna need this in college." I feel like in high school, what happened like 95% of the time was they would teach toward the AP test or the TAKS test or whatever. And so I didn't feel that was a good representation of college classes, especially like in AP classes. In pre-AP classes, I can understand, but AP classes are supposed to be like college classes. And so the fact that they would just be like, "Well, this topic usually isn't covered on the AP test, so we won't teach it." I felt that wasn't a wise move on their part. I never really struggled too bad my first semester here, but I did realize that professors here they're not teaching towards like a certain test or goal. And so I guess that really never like shocked me, but I wish they would've done this in high school. But I was able just to adapt quickly. (INT-Julia.7/21/10.p19)</p>	<p>...I just started taking upper-level classes....I still did fine – it was more of just like a shock that there was a very marked jump from the amount of work, from fall semester to spring semester. And I guess all the upper-level engineers, they've been telling me that one is the hardest because that's the first semester that you have to do that. But from here on out, it's about the same, just now you're used to it....I think what had happened was, everyone said that that one was the hardest. So in my mind, it would be like okay, that's the peak, and then from there it's not as bad. But then I heard otherwise. I mean it's okay – like I definitely enjoyed all the things that I was learning – it was more of I didn't enjoy staying up until 2am in the morning because I had a lab report due, and then homework to do, and something else. And then I also had to study for a quiz – that was more of what I didn't like. (INT-Julia.7/21/10.p11)</p>	<p>If I ever have a question, I just go to the professor and he'll help me....they all have been really helpful like answering my questions and just explaining things a little bit more if I didn't get it the first time. (INT-Julia.7/21/10.p14)</p>
	<p>In high school, I never really asked questions. I was pretty quick at picking up something, and I was like oh, okay, well, you know, like the way you do the problem is this. And I'll just memorize the method and just repeat it and repeat it, and I'll do it on the AP test, and I'll do really well. (INT-Julia.7/21/10.p19)</p>	<p>And so it was real easy for me to just find like a study group. There were like 4 other kids in the dorm who were like the same year as me and the same major as me, so we'd always get together in one of their rooms and work together and study. (INT-Julia.7/21/10.p13)</p>	<p>...there was one professor in physics, and I guess he's just used to — because I guess it's kind of a weed-out class, and so I'd always go and be like, "I don't understand this." And he just gave me like this grumpy face and would be like, "Well, it's easy." (INT-Julia.7/21/10.p15)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Julia		<p>...this past semester, my classes would end around 2:00 pm, and I'd start doing homework maybe like from 5:00 pm to midnight or so with a break for lunch. So I guess like 30 hours, 40 hours a week. (INT-Julia.7/21/10.p14)</p>	<p>...I would go into the professor's office and just ask them to explain one more time why it is all this works and stuff like that. (INT-Julia.7/21/10.pp20-21)</p>
		<p>...when I came here...the test would be like oh, okay, well, this is how you're used to seeing them, but what happens if we do this? Or <u>why</u> is this working? And so I had to kinda change the way I learned from just memorizing a method to learning <u>how</u> it works and then applying that method to a problem. (INT-Julia.7/21/10.pp19-20)</p>	

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	Transitions	Approach	Assistance
Julia		<p>Because freshman year, you know, I was able to scrape by just memorizing methods and stuff. And then sophomore year, when I was in mechanical engineering, I actually started taking upper-level classes that were calculus. That's when I was like oh, I should memorize or I guess learn how to work like a statics problem or thermodynamics problem because I guess in the real world, like whereas calculus, you know, you're always gonna take a derivative and it's just gonna be a function.</p> <p>Thermodynamics might be applied to like a refrigeration system or a cooling system on a bus or somewhere else, and it's not always gonna be like these cookie-cutter molds of problems that you can just memorize unless you memorize like thousands of problems.</p> <p>And so it helped . . . the people I would study with . . . at first, I thought like they're wasting all their time studying these in-depth, and then I realized "No they're not. They're doing it right." So I guess just studying with them and making sure I asked a lot of questions.</p> <p>Because it was really hard to just train my brain from being like okay, I understand or I sort of understand, to being okay, now I completely understand and I can like explain this to someone else or why this works. (INT-Julia.7/21/10.p20)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Julia		<p>...to me and to a lot of people in the class, they were like the "overachievers," like "you don't need to know that, you just need to know what's on the test." And so I guess that's one thing that was difficult, like even still now. If a professor is like, "you won't have to derive the formula on the test, but you should know how to do it," a lot of people are like we heard it won't be on the test, so it's just out of our memory. (INT-Julia.7/21/10.p21)</p>	
		<p>...it was more a gradual thing, but it wasn't until like after freshman year. Because it seemed like with most of my freshman year classes, the professors are like this is Cal I, this is the material. And with the other level classes, they were like okay, this is like fundamental to your curriculum. And so with things like that, I was like well . . . or it would be like winter break, and then I'd come back and I'm like oh, you know, I memorized this for the final, but I don't really remember any more. And then I realized if I wanted to continue not having to relearn and relearn, I should just learn. It's easier to learn why it works, than just memorizing how to do it and what tricks to look for in a problem. (INT-Julia.7/21/10.pp21-22)</p>	

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Julia		...what's definitely helped me is just learning like with my peers, like just going over examples and talking about it with them. Because maybe they understood something a better way than I did, and they could explain it to me. (INT-Julia.7/21/10.p37)	
Luis	Even though I was an honor student in high school, I didn't come in as an engineering major because there's a math entrance exam you take when you first apply to A&M and I failed it because, even though I was great at calculus, great at mathematics, I did not know trigonometry. (INT-Luis.7/26/10.pp6-7)	The classes were interesting. They were just basic, general, general classes. I took a, like there was a pre-calc class. There was basic English, geography, and there was a learning class....It was part of the Regents Scholars program. It was a class that teaches you how to study at the college level....and I think one more class, I don't remember what it was. But it was a pretty tough semester. Oh yeah, it was poly-sci, poly-sci 206. It was a tough class. I survived that semester somehow. It was really difficult. Really, really difficult. (INT-Luis.7/26/10.pp24-25)	...people said, use a 4.0, A+ Tutoring, or whatever, I never used any of that. I thought it was kind of pointless even if it was useful. It could've probably helped me out in a couple of classes but I decided never to use it. The only tutoring I actually used was the...only help I've actually ever gotten any tutoring was in the math lab that I worked last year. Before I worked there I actually went there to get help and that's about it. Beyond that, for a 400 level math class I had this past semester I actually attended help sessions weekly. And that's about it. That's about as much outside tutoring as I've gotten. I've had this mindset that I should be able to do things on my own through my own ability. Like, I should ask for help only if I really need to but if I can achieve it on my own, I should do it. (INT-Luis.7/26/10.p32)

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Luis	<p>In high school I never studied. High school was easy to the point that I never had to do anything to get an A. (INT-Luis.7/26/10.p29)</p>	<p>...I failed my first math test on campus. In the pre-calc class, I thought pre-calculus was a joke. I get back my first test; it's an "F"....Talk about culture shock when you see that. The person next to me is like, "I got a 98. What'd you get?" "F." So, and that happened across the board in my classes my first – everybody says your first math exams at your college are a doozy. Oh yeah. I thought high school was easy and that college first semester was just high school, just a little worse. No. First tests, I got killed on all of them. Except English. I was happy because in English I was only one of three people to get an "A" on the first project. It was a major essay we had to write. Half the class failed it so I felt really proud. But, barring that class, the other classes were like, "Fs," "Cs" and crap. It was an eye-opener to say the least. (INT-Luis.7/26/10.p30)</p>	<p>I tried to be kind to the faculty maybe befriend them and basically, just, get to know them so that we could actually have conversations. Very few have I encountered, faculty members, that are just not cooperative with students. Like, the kind that really antagonize students, very few. But I've met a few that are not so nice. (INT-Luis.7/26/10.p35)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Luis		<p>...I've formed study groups before....Non-successful ones were in classes that I actually never really worked outside of the study group to figure out stuff on my own and I pretended the study group would teach me everything. Those were...my early times at A&M where I still didn't really know what I was doing. Later on, I actually kind of know the material; I'm studying it on my own. So, that when I go to the study group, I'm just reinforcing what I know and I usually end up helping people in the study group who did what I was doing before where they would go to the study group to learn everything they hadn't. So I would switch roles and explain things to other people. So I kind of changed the way I studied by doing my own self-studying on my own before I would ever go to a study group. (INT-Luis.7/26/10.pp32-33)</p>	<p>...I have seen specific professors discriminate against people in general. Like, I've seen a professor discriminate against women and he was an idiot. He was a physics professor and he just thought women weren't competent in sciences. I've seen Asian professors, basically, look at Hispanics or anybody who's not an Asian and say, "You're an idiot"....I mean, I've seen it. It's not widespread. It's just, like, isolated professors who are being stupid. (INT-Luis.7/26/10.p40)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Madeline	<p>...in high school, I just kinda dragged along. I was the top 5% of my class, but to say that I really tried in high school...I wasn't very focused in high school. (INT-Madeline.7/23/10.p2)</p>	<p>I studied a lot more, but I didn't really notice a difference, since in high school I didn't really study that much. And I was just a good student, like average, so I knew how to take notes; I knew to go to class every day. My dad would give me a lot of tips, like, "Go to your professor's office hours. Start studying a week before." So with all of that help, I was able to not really like feel maybe what some people feel from high school to college. I expected that because my high school was not very hard, I guess. Like it was a big school, but since I didn't take that many AP classes, I knew that it was gonna be a lot harder. (INT-Madeline.7/23/10.p9)</p>	<p>...first I ask my professors for help. And then if I can't get it, I ask people in my class. I used to get an A+ for lower-level stuff and thermo. But I've never gone to like an on campus. (INT-Madeline.7/23/10.p17)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
Madeline	<p>It was tough the first couple of semesters because I didn't really take past pre-calc, so I had not calculus experience, and that was really tough, because I was just kinda thrown in there. Or physics – I didn't take physics in high school, so I took AP bio. And all the credits that I got didn't transfer at all – none of them – they don't count towards my major, so they're just there. (INT-Madeline.7/23/10.p4)</p>	<p>Like lower-level stuff was weed-out classes. They made it super-hard just so they could get rid of people. And once you got to upper-level, it was easier somehow but harder. Like the workload, you would spend . . . I remember my first upper-level semester, like I would be up until 2:00 in the morning doing homework. But it wasn't as bad as being constantly afraid of them kicking you out of the engineering program. Because it was hard, but like doable, whereas some of the lower-level classes were just hard. And like you had to do everything in your power to try to even pass. Like it wasn't a question of maybe I'll get a "B" – it was I hope at least I get a "C", the "C" that I need. And there was a couple times where I barely scraped by. (INT-Madeline.7/23/10.p14)</p>	<p>Some of them [professors] – it depended. Some of them were kind of like very detached and just not very nice sometimes. They would just make me feel kind of dumb....Others were really helpful. It kind of depends on if you are their same department. Because one of my professors, when he saw that I was IE (Industrial Engineering), and he was in another department, he tried to convince me to go to his department. And I was like I don't think that's legal – like he shouldn't be recruiting people from other majors.... he was making fun of my major, so that wasn't very nice. Because a lot of people think that IE is the easiest one, because they just . . . it's a lot easier to get in than say mechanical or chemical. But we have to take all the same classes they do. (INT-Madeline.7/23/10.p18)</p>
	<p>...the first semester, I didn't take any engineering classes. I took pre-calc again and just prerequisites for other classes or university requirements. (INT-Madeline.7/23/10.p5)</p>	<p>...you do your homework before, during the week or whatever, and then before a test, I'll read the theory, and then I'll start redoing my homework problems, and then redoing old tests. And then I do that about 2-3 times – I just do problems over and over again. (INT-Madeline.7/23/10.p16)</p>	<p>Yeah, I have a [specific group of students to study with]. . . it took a while to find industrial engineers, because it wasn't until last semester that we started doing all IE classes. So I knew a bunch of civil engineers and mechanical engineers, but I didn't really know industrial engineers. But once you start the classes, you kinda saw them. (INT-Madeline.7/23/10.p19)</p>

Participant	Successful Study Strategies		
	Transitions	Approach	Assistance
<p style="text-align: center;">Madeline</p>	<p>Maybe the AP classes I took [prepared me]. Not studying wise, but just like being able to focus when you're professor is talking, or some of the workload was pretty heavy during AP classes, so I got used to that. Reading... index cards. So it was like half-and-half, I guess. It kind of prepared me, but it was more my dad's tips that prepared me for college than actually high school. (INT-Madeline.7/23/10.p9)</p>	<p>Out of like a 5-point scale, I would say maybe a 4 [know the material]. Because for the final, I'm good. It's still like in my memory....I have a really bad memory, like a really bad memory. That's why I have to like repeat stuff over and over again. I used to be good at memorizing, but then I don't know what happened. [too much to memorize?] Yeah, you just can't – like my first semester, I tried to memorize how to do math problems, and that didn't really work because they're all different.... You actually have to know what's going on. (INT-Madeline.7/23/10.p17)</p>	
		<p>I usually study by myself – I'm kind of a loner in that sense. (INT-Madeline.7/23/10.p18)</p>	

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